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An Address

ON THE

PROGRESS OF PATHOLOGY.

Delivered at the Opening of the New Pathological Institute at the University of McGill, Montreal, on Oct. 6th, 1924.

BY A. E. BOYCOTT, M.A., D.M., F.R.S.,

GRAHAM PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF LONDON; DIRECTOR OF PATHOLOGY IN UNIVERSITY COLLEGE HOSPITAL AND MEDICAL SCHOOL.

MAY I begin by thanking the University very heartily for giving me the chance of taking part in this ceremony. It gives me the greatest pleasure to be here, and I take it as an unexpected compliment to English pathology that you have asked me; it helps us to know that the common opinion that English pathology does not count for very much is not universally shared. Speaking on behalf of my colleagues, I bring you our best congratulations on achieving this splendid addition to your resources and our best wishes for the future. We feel, I think, that we have a special kinship with McGill pathology. We both enjoyed the stimulus of Osler, you at the beginning and we at the end of his career; Adami has always been with us more or less, in person or in his books; Miss Maude Abbott has tried to teach many of us how to classify museum specimens. So that we have always had a good deal to do with you.

The history of academic pathology is brief. Your first professor was appointed in 1892 and still lives in the world of administration to which he has been called, and in thinking and talking of pathology it is always well to remember what a young subject it is—still in the exuberant and rather disorderly period of adolescence. You are now enjoying your second professor, and his career has culminated and started out on a fresh pilgrimage at a higher level by the provision of this noble institute. You have seen, or will see, for yourselves what a place it is; I need not dwell on that. I do not set so very much store on buildings and fitments myself—the people who use them matter much more—but you do want room and light and plenty of gas, water, and electricity, and it is evident that this new institute is admirably adapted for its purpose. I would rather emphasise its origin which has, I think, more to teach us. It has been erected by the patriotism of the citizens of Montreal and the loyalty of the alumni of the University under the encouragement and stimulation of the Rockefeller Foundation, and I do not think I am going too far when I suggest that this institute would not have been attained, at any rate in these years, without the aid of that remarkable corporation. The Rockefeller Foundation is charged to administer its funds "for the good of mankind throughout the world"; it has chosen medical education as its special field, and there are now schools all over the world from China to Peru which are indebted to the wise generosity of Dr. Vincent and his colleagues. Has there ever been a more ample and beneficent example of that internationalism which the world so much needs? We are, I suppose, agreed that the whole ethic of a good life is summed up in that simple direction "Bear ye one another's burdens." It is simple enough, but it is hard to do—all those simple rules which Jesus gave us are hard to do, are they not? But I think the Rockefeller Foundation has been and is making a pretty good attempt. What burden of theirs you are bearing in return I do not know unless it is the burden of some of their liquor.

THE DEVELOPMENT OF PATHOLOGY.

Why is it that we welcome this building? What is pathology about that it is worth study? Pathology has come to be such a hodge-podge of interests and activities that a definition is difficult. But, roughly speaking, it deals with the causes of injuries to live organisms, with their effects on the body, and with what the body does to try to put things straight. In other words, it is, in its application to man, the study of disease apart from diagnosis and treatment. It began everywhere I think in morbid anatomy, in the investigation of the changes found in the body after death. And in this it still finds its fundamental basis. Though modern biologists sometimes seem to think the contrary, form has still to be taken into account along with function, and if alterations in structure are not now the end as well as the beginning of inquiry the quaint notion that morbid anatomy is played out comes only from those who are ignorant of what the anatomist has to say. And because those who pursued this work were the only people in immediate contact with medicine and surgery who had a liking for, and any skill in, laboratory methods of investigation, it has extended very widely into any laboratory work in relation to sick people. The result is that the content of pathology is singularly various. It is like a Woolworth's window—some of it is worth having at the price and some of it isn't, some of it ought to be there and some of it ought not. Let me illustrate what I mean by two examples taken from topics which have in recent years occupied a considerable share of the printed literature of the subject.

The Wassermann Reaction.

The Wassermann reaction for the diagnosis of syphilis by the examination of the blood was discovered about 15 years ago. It was found out by the logical application of established principles. But it very soon appeared that it had in fact nothing to do with those principles at all; it was an empirical trick, and to this day its rationale remains unexplained and it is a phenomenon which is unrelated to anything else. But it is a first-rate method of diagnosing a disease which has been a stumbling-block in clinical medicine and surgery since Erasmus deplored the evil influence of its growing prevalence on the development of culture in Europe in the sixteenth century. Except in its early stages diagnosis was often simply speculative, and the real prevalence of the disease and its real importance provided an unrivalled field for the guess-work to which we doctors have been almost as prone as the propagandists. The Wassermann reaction has altered all that. We now know who has syphilis and who hasn't; we know that general paralysis and tabes are syphilis; we know that it is a serious disease, but nothing like so serious as tuberculosis, or cancer, or bacterial infections of the heart. All of which you will see is diagnosis—in other words, medicine. To pathology the discovery has contributed practically nothing; it leads nowhere, it illuminates nothing else. It is one of the items in what is called pathology which ought not to be there until it has earned its place in the scheme of rational and related knowledge.

The d'Herelle Phenomenon.

Contrast this with the phenomena recently discovered by d'Herelle and since discussed by him and others in hundreds, I expect thousands, of papers. d'Herelle found that under certain circumstances something appeared in cultures of bacteria which killed and dissolved them. I need not go into the rather technical details; the essence is that this something is associated in an intimate way with the bodies of the bacteria, that it can multiply, and that it is too small to see. Of the facts, two opposed explanations have been put forward. d'Herelle himself holds that the something is a living parasite of the bacillus and thinks that he has found out an important method of circumventing their objectionable activities. Others think that the something is not alive but is a dead ferment. I know of no crucial test which could be applied to settle the point at issue. If it is alive it certainly differs from any other known live thing; if it is dead, it equally certainly differs from any other known dead thing. When serious and skilful investigators have a difference of opinion of this kind, it may always be assumed that the dilemma which they are propounding to one another is not a real one, or that

their antagonistic interpretations do not exhaust the possibilities. So it evidently is in this case. Is it alive or dead? is not the final question, for the something is plainly half alive or half dead whichever way you like to phrase it, and this work has revealed to us the connecting link between live and dead matter which almost everyone has assumed to exist, and which everyone is strangely loth to recognise when it is before them. We now see the whole world displayed in one continuous series from the atom to the elephant. I need not dilate on what a discovery like that means. True, it is of no apparent importance in the treatment of dysentery as d'Herelle hoped, it has no obvious connexion with clinical medicine and surgery. It just helps us to make a substantial step in understanding the world. Is the Wassermann reaction or the bacteriophage the more worth our attention? The Wassermann test does much for our bodies, it may do a little for our minds when we tot up statistics, it leaves our souls where they were. The bacteriophage knits up some of the greatest adventures of the human mind, it brings together people so diverse as Béchamp and Rutherford, and for my own part I feel the better for it.

Such are two examples of the varied topics of which "pathology" has come to consist. Of its practical utility there is no doubt; some of you may have heard, and more will have read, the statement which the President of the British Association made this year at Toronto of the wonderful progress of recent years. In the dead-house, in parasitology, in nutrition, in chemical pathology, in experimental work, progress has been prodigious along practical lines. In the everyday work of any respectable hospital the methods of pathology take on an ever-increasing importance—parenthetically I may be allowed to suggest sometimes too much; as every pathologist knows there is singular readiness on the part of some of those whose business is diagnosis and treatment to desert the difficulties of the wards for the far easier problems which we make up in laboratories; that, however, is not my business. I remember as a medical student seeing as much of the work of Dr. Jenner's pioneer clinical laboratory in London at St. Thomas's Hospital as a rather autocratic director would allow, and it is interesting to compare the scope of what was done then with what is now commonplace in meaner institutions and under far meaner inspiration. Useful then pathology is. But it is not on that account that we think pathology is worth studying, and welcome so heartily this new encouragement of its pursuit.

THE REASONS FOR STUDYING PATHOLOGY

Dean Gaisford, of Christ Church, once said, about a hundred years ago, that there were three reasons why you should know Greek. In the first place, he said, it enables you to read the words of Jesus in the original; in the second place it allows you to have a hearty contempt of those who are not acquainted with the language; and in the third place it leads to positions of emolument in the Church. Our immediate comments are obvious, and we should naturally say of his first reason that it is untrue, of his second that it is hardly charitable, and of his third—well, the less said about it the better. But at bottom I am not at all sure that the Dean was not putting forward, in a curious way it is true, a very real apology for the study of a subject which has done so much for our right development during the past 400 years. The world 100 years ago was quite a different place from what it is now, and he knew that ample means helped towards the freedom which is wanted for mental and spiritual progress; he realised that this culture admits a man to an intellectual aristocracy which knows itself to have inward resources from which those without Greek are excluded; he wanted to say that if a thing is to be rightly apprehended and in the fullest way you must get down to the root of it, you must read it in the original. This is the real apology for Greek, and it is the real apology for pathology too. We want to study pathology because of our insatiable curiosity to understand things, and because we know that the satisfaction of that curiosity helps us along the world's search for goodness, truth, and beauty. In other words, we want to realise in pathology the ideal which is the basis and impregnable rock of our universities. I am almost ashamed to deliver myself of such platitudes before an assembly for the most part composed, if I may judge from your gay clothes, of university doctors. But things happen nowadays and things are said which seem to make it necessary to state our ideals occasionally in black and white and to remind ourselves for comfort that our rock is, in fact, impregnable. Knowledge is extolled because it is useful; we are told that universities should be run on business lines, that their main purpose is the passing of undergraduates through courses of instruction. People are ashamed to say that they are interested in Greek grammar or the anatomy of crustacea or the necroses of the liver for no other reason than that God has put it into their minds so to be; they must fain produce excuses about political anthropology or inshore fisheries or medicine. Only the other day Prof. A. V. Hill was making excuses to the Royal College of Physicians of London for the study of physiology for its own sake—a sign of the times on which I can make no adequate comment.

I judge, therefore, that the time has now arrived when pathology must recognise that it is a science which can and ought to stand on its own feet and pursue its own end, which is the study of pathology, not the study of medicine and surgery. That it is able to do this and that it can be so studied its achievements have, I think, amply demonstrated. Arising from medicine and having been brought up with that humane kindliness which characterises our profession, it is time it started out on its own: it needs to go to its secondary school and not to have its education stopped at 14 to do chores to help out the family budget as a half-timer. If by one of your miracles of inhibitory legislation you prohibited medicine and surgery to-morrow, pathology would still go on; it is old enough for that now, and I sometimes think it might be none the worse for a holiday right away from its parents.

THE PRESENT STATE OF BACTERIOLOGY.

It is, I believe, only by a recognition that this is the present situation—more or less—that further progress is possible. And surely fundamental progress has been slow enough in recent times. Consider, for example, the present state of bacteriology. The study of it began intensively about 40 years ago; it started technologically and for long was almost purely medical in character and application. Lately other branches—soil, leather, and what not—have grown big, but they are technological too. What is the result? Its technological progress has been prodigious; our knowledge has not only completely revolutionised medicine and hygiene but has come to be an integral part of the daily life of the general population. Indeed, if I want to explain to some curious laymen what my pre-occupation is, "bacteria and so on" saves trouble and will convey something pretty definite; everybody "knows about bacteria." But bacteriology is now sterile; no discovery of first-rate importance has been made for many years, and we are constantly being brought to a standstill for want of knowledge of how bacteria live and move and have their being—knowledge of a sort which may be called botanical. We do not even know how bacteria multiply and whether they have anything in their life-history corresponding to a sexual process. Not knowing that, we cannot evaluate the possibilities of variation and mutation, questions which lie at the root of many problems of epidemic disease; nor can bacteria satisfactorily form the subjects of a number of biological experiments for which their small size and rapid multiplication so admirably fit them. And this state of affairs is due to the fact that bacteria have been studied as causes of disease; no one has loved them for themselves. Practice has outrun theory so far that practice is itself coming to a dead end.

Apart from its technical medical aspects, much the same is true of the rest of pathology as anyone may see by comparing Coats's text-book with the latest edition of McCallum. Except in detail progress has been very slow; I need not labour examples.

TECHNOLOGICAL AND GENERAL PATHOLOGY.

We must then return to the outlook of Virchow and Cohnheim and the other great masters who taught us that pathology existed and was worth our attention; I do not imagine that it ever occurred to them that it was nothing more than an appendage of medicine. The medical aspects are at present in most places fairly well satisfied; it is the more general outlook which needs attention. Our history will, I imagine, reproduce the history of chemical study. Fostered a good deal in medical schools in early days for its pharmaceutical importance, it has now developed into the chemistry which is prosecuted in universities and the chemistry to which schools of technology devote themselves—not two separate sciences but two ways of looking at the same science which, incompatible in temper to a degree which makes it impossible for them to live happily together, yet freely communicate with one another, have all knowledge in common, and unite into a complete and harmonious whole. Correspondingly we shall have a technological pathology in the medical school and a general pathology in the science faculty. There will be no divorce of clinical from scientific work—I am particularly anxious that you should not think I am advocating that—but each of the partners will be free in the service of the other. "Next," says Dorothy Osborne, "to doing you a service my greatest pleasure is to receive one from you"; that is the relation which should exist between medicine and pathology.

If we try to direct this piece of evolution by deliberate effort in detail we shall be likely to make something of a mess of it. What we need is the right spirit, and with that all these things will be added to us. But two or three things are obvious. In the first place much of what is now called pathology must be transferred to medicine and hygiene where it properly belongs. Especially should that curious hybrid "clinical pathology" be brought to an end. It has been an extraordinarily useful makeshift, but it is pathologically sterile and has other mulish qualities, and being essentially diagnosis, should be distributed between the appropriate clinical subjects. This transference has begun, its need is widely recognised, and in due course, no doubt, it will be complete. The change is made easy by the establishment of the whole-time clinical departments which, if only people will have patience, are going to transform the whole atmosphere of our medical schools. Similarly in hygienic bacteriology, diagnosis should pass to the health officer and the scandal of university departments engaged in trade, prevalent enough in England, ought to be stopped. In each case the change will be much to the advantage of both parties: both the clinician and the medical officer of health will gain by having the work in their own hands, and the pathologist will be free of a mass of dull work of which he seldom sees the real significance and which at the best affords a placid occupation for unimaginative minds.

The Two Sorts of Pathologists.

Many of my pathological friends will, I know, object strongly to these proposals. There are roughly two sorts of people who profess and call themselves pathologists—those whose real heart is in medicine, with all its human fascination and its individual interests, and those who are in pathology because they have had it laid upon them to try to know about the reactions of live things to injury and disease, without any more particular reference to human welfare than all of us selfish humans have in our anthropocentric world. I have no wish to start a heresy hunt, but it is plain that in the redistribution of work which I have indicated the former class will go where their treasure is and join clinical departments.

COMPARATIVE PATHOLOGY.

And in the second place, we must widen the scope of the pathology which will in this way be freed from much that does not really belong to it. When you come to think of it, it is really fantastic to try and deduce general rules from an intensive study of man and casual observations on the few species of animals which we find convenient, for human work, to have in our laboratories. It is curious how often a more generalised pathology has been advocated and how little it has been practised. Hunter, Paget, and Macewen are names which will appeal to the most practical of surgeons; they all laid stress on making the field of our study wider; few have listened to them. What we need is a comparative pathology, and it will transform our notions of disease and injury as the comparative anatomy of last century revolutionised zoology. There is no time to enlarge on this necessity; let me just quote three examples. The site distribution of tumours is a matter on which there has been a good deal of talk; we happen to know that the distributions in the mouse, the dog, and the cow are different from one another and quite different from what obtains in man. We clearly ought to know what it is in as many animals as possible before we draw any conclusions of more than specific scope. The anatomical reaction to injury is one of the greater topics of pathology. How much will you find in our text-books on plant galls which exhibit an exquisite specificity of anatomical reaction which is quite unrepresented in animals? Of the physiology and pathology of galls little is known and their study is still in the taxonomic stage. How often is it realised that the chemical methods of defence against parasites of which we have to read so much are an evolutionary development attained to only as warm-bloodedness was achieved, and that they are of importance only among that small and very specialised group of live things? The importance of studying animals other than man is well illustrated by the work which Miss M. Slye has done on her town of mice at Chicago; quite apart from tumours, towards which her study is particularly directed, she has a mass of interesting data about the pathological changes to which those animals are subject and the causes of their death. Dr. H. Fox, in Philadelphia, has lately shown us what good use may be made of zoological gardens, and Dr. N. S. Lucas and others have made a beginning along the same lines in England. Veterinary studies have contributed something, and Dr. Theobald Smith gives us an example of what may be done by observing a herd of cattle as a health officer observes a human population. But "comparative pathology" is not always what it might be; too often it is simply the technological study of diseases of importance in domestic animals of economic value, and it is given a name which will satisfy the academic pedant and for its prosecution excuses are made which will please the practical agriculturist and with luck attract endowments. Anyone who wishes to see what an all-round conception of general pathology can be should study the writings of that good man and great scholar, Samuel George Shattock, who died a few months ago after 40 years devoted service to his science.

And thirdly, something may be done educationally. Medical instruction has been mauled about enough for the present; I think we had better leave it alone for a while and see how our reforms work. But pathology should no longer be a purely medical subject and courses should be available for other than medical students, first perhaps for the biologist, to whose subject pathology is more germane than has been realised, then for the philosopher. It would do us teachers a deal of good to have to guide into pathology students who neither know nor intended to know any medicine; we should, I am sure, reap a good harvest of fresh ideas. A beginning in this has been made already; at Cambridge, under Prof. H. R. Dean, pathology has got into the natural science tripos; at

Manchester Prof. W. W. C. Topley, and at Leeds Prof. J. R. McLeod are exploring the possibilities of a generalised bacteriology, and there are, no doubt, other advances being made along the same line which I do not know of. Feeling a little nervous that the programme which I have sketched might not commend itself to Prof. Oertel, I was delighted to learn on getting here that McGill is adopting this wider point of view and recognising pathology as a subject for the M.Sc. and Ph.D. degrees. Whether many students will present themselves for these new courses remains to be seen, but that is a factor which should count for little in any scheme of university reform.

CONCLUSIONS.

Well, here is your new building; may you have a happy life in it. William James says somewhere, you will remember, that a deed well done can reach perfection only if it is well received. Those who have provided this institute have done their good deed; it remains with you to make it perfect by your good use of it. I am sure you will.

THE

Bradshaw Lecture

[ABRIDGED]

ON THE

PREVENTION OF ACUTE RHEUMATISM.

Delivered at the Royal College of Physicians of London on Nov. 4th, 1924,

BY F. JOHN POYNTON, M.D., F.R.C.P. LOND.,
PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL AND THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

[AFTER referring to the study devoted by Fellows of the College in the past to the subject of acute rheumatism, and specifically to the work of those who had been his own teachers, Dr. Poynton proceeded to discuss the difficulties that beset the problem of prevention. He said:—]

The prevention of acute rheumatism is faced with many difficulties, and I think the more closely it is studied the more apparent these become. The first of these is nomenclature, for acute rheumatism may be the most insidious of maladies. Yet if we leave out "acute" and use the term "rheumatism" we are at once overwhelmed by the various disorders with which we are confronted, and if we abandon the term "rheumatism" altogether we shall have great difficulty in finding a substitute.

The next difficulty is concerned with the ætiology of acute rheumatism considered as an infective disease. This has a most important bearing upon the possibilities of prevention, but is at present in a state of uncertainty. I believe I shall not be wrong if I put the position somewhat thus. Many who have given the most attention to the subject recognise the importance of the strepto-diplococcus, but do not think that it affords a complete explanation and would look elsewhere—to some filter-passer, for example. Neither do I look upon this micrococcus as a complete explanation, but I do not anticipate the discovery of another infective agent. I look for help from the unravelling of the tangled skein of the secondary factors which combine with the micrococcus to produce this specific disease.

Even if we admit that acute rheumatism is due to a specific infection we find ourselves confronted by further problems, among which are the many predisposing factors to the infection, such, for example, as heredity, environment, and nerve strain.

Again, our conception of the disease is still deficient in two particular directions; we have very little accurate knowledge either of the life-history of such an infection when once it has gained access to the human frame, or of the influence of the tissue-characteristics and habits of the patient upon its course. On this account I have always included in any scheme for the prevention of acute rheumatism provision for opportunities for research.

The varied symptoms of the disease dependent upon the various important organs attacked constitute yet another difficulty, though one which must steadily diminish with increasing knowledge. Then there is the difficulty of treating this disease with success, and upon this point, so far as children are concerned, I unfortunately find myself at variance with many able physicians. Except for the relief of pain, my experience as to salicylate of soda and other members of that group has been so unsatisfactory that I have no hesitation in stating that in the most formidable cases of carditis in the young my best results have been obtained without their use.

REASONS FOR ATTEMPTING PREVENTION.

It may be asked whether it is not premature in the face of so many difficulties to enter upon elaborate attempts at prevention, but to this I believe we may safely answer "No," and for these reasons: 1. It is generally admitted that acute rheumatism is a cause of three disorders of national importance—first and foremost, organic heart disease, secondly chorea, and thirdly arthritis and fibrositis. 2. It is not a rare disease but a frequent one, and the heart lesions, chorea, and arthritis are common manifestations. 3. It is much more rife in the poorer classes, and the study of poverty with a view to its amelioration is undoubtedly a function of a civilised country. 4. Again, it is a disease which certainly responds to careful supervision and treatment, and there are at the present time flaws in our supervision capable of at least considerable mending. 5. Lastly, it is not a disease of the old and failing, but one that kills and maims children and young adults, damages useful citizenship, and wastes much money spent on education. A recent Blue-book on the subject of the "Incidence of Rheumatic Diseases" in its quiet pages supports all the statements I have just made.

THE MEDICAL PRACTITIONER.

In the prevention of acute rheumatism it is clear that the doctor in general practice must, as in all the great problems of preventive medicine, take a prominent and essential part, not only in early diagnosis and treatment, but in the supervision of those who have suffered from the results of the disease. It is not too much to say that if this branch of our profession failed us, which is not thinkable, the whole fabric of prevention would be unsound at its foundations. The responsibility for adequate training in the clinical and pathological aspects of the disease rests with the great teaching centres. To them we must look for rousing in the minds of future practitioners an enthusiasm for the opportunities they would have to help to make a success of a scheme which holds out such great possibilities.

THE HOSPITALS.

Our hospitals, and in particular the children's hospitals and the children's departments in the general ones, would in any scheme hold, I presume, the same position they do now, and would also carry out the training of the undergraduate students in the recognition of the disease and its manifestations and the methods of prevention and immediate treatment.

The out-patient departments of hospitals would be mainly consultative. They would in the poorer cases take the place of the general practitioner as supervisor, but their most essential functions would lie in deciding a difficult diagnosis, in admitting to the hospital, and in advising doctors and patients as to the best procedures at the moment.

A Weak Point.

We are now met by a weak point in our management. It is common knowledge that recovery from acute rheumatism is often slow, and that neither cardiac inflammation nor chorea are conditions suited to ordinary convalescent homes. The alternatives are to keep them in a sick ward in the middle of a great town or to send them home. The weakness, then, in the present position is twofold: we are not doing the best for our rheumatic patients, and we are using beds in expensive institutions which are required for urgent or obscure cases.

Recovery Hospitals.

Each year it is becoming more evident that the great cities, and London in particular, require recovery hospitals in the adjacent country in vital touch with the mother hospitals. In an ideal hospital of this type the cases would have the necessary time for convalescence, would, in the surrounding grounds, be trained for physical exertion, and eventually be classified according to their ultimate degree of recovery, and they would also—a point of great importance—*continue their education*. The history of acute rheumatism would be continued in a sequel to the first hospital notes, and eventually the children returned to their parents with a short practical statement as to their capabilities.

One link in this chain requires the most careful consideration. There must be an intimate and vital connexion between the parent and recovery hospital. If the latter once drifts into a second-rate soul-less abode for "uninteresting cases," its value is lost, and it becomes a monument of inefficiency.

Pioneer Attempts.

Pioneer attempts have already been made in this country, as for example, at the Edgar Lee Home (Stonebridge Park), Broadstairs, at the Chiene Hospital, in Birmingham, and at Bristol and doubtless elsewhere. The Invalid Children's Aid Association in particular has taken a prominent part in this movement, and has recently started a home of 50 beds for females up to 14 years and males to 7 years of age at Hartfield, in Sussex. I have the honour to be one of the hon. visiting officers, and, though it is too soon to make a report on progress, I may remark that at present the results are encouraging. The gains in weight, the absence of attacks of rheumatism, the improved physique, and the happiness of the children who are continuing their education and living and sleeping practically in the open air, make me hopeful that we are entering upon a real advance in the treatment of rheumatic heart disease.

THE MINISTRY OF HEALTH.

Leaving now the rôle of hospitals, I come to the far-reaching activities of the Ministry of Health, Board of Education, and medical officers in the London County Council schools. Hidden away in their not superficially attractive reports there are some of the most fascinating chapters in modern medicine.

Official Medical Supervision: Infant Welfare.

During the first years of life we have the infant welfare centres, from 5 to 14 years the school medical officers, and from 16 years onwards the National Insurance. There are two breaks in complete continuity, one between the second and fifth years, and the other between the fourteenth and sixteenth years. The break between the second and fifth years, which in theory does not exist but in practice does, will doubtless be eventually bridged, and already is encroached upon, on the one side by the infant welfare organisation, and on the other by the school authorities. I have given considerable time and attention to the subject of acute rheumatism under 5 years of age, and though I am not implying that the disease is frequent then, I am sure that it occurs more often than is generally suspected, and that it is liable in these early years to cause great damage to the heart. Supervision between 2 and 5 years should eventually throw light on the earliest phases of the disease.

School Medical Service.

The period of *school life* is by far the most important in the history of acute rheumatism in this country. The incidence of the disease rises rapidly after the fifth year to about the tenth, and chorea, which I have seen as early as nine months, and occasionally in the second year, comes now to the front. It follows that the School Medical Service must take an ever-increasing share in the problem of prevention.

The appearance of chorea during the school age demands, I think, special attention. This manifestation is a most interesting one, for on account of the peculiar movements it becomes the most sensitive clinical index we have of active rheumatism, and it is also the manifestation which most frequently occurs alone and has a most striking sex incidence. Accordingly the study of the course of chorea gives us a very fair insight into the general behaviour of acute rheumatism, and when we recall that repeated chorea is a frequent indication of an early mitral stenosis, we suspect that both these lesions are pre-eminently the result of the smouldering activity of infection.

There is a passage in the report of the Chief Medical officer of the Board of Education which deserves particular attention. It comes from a report in 1923 of the consultative committee on the differentiation of the curricula for boys and girls respectively in secondary schools. This committee draws attention to the present danger to health connected with the strain of examinations and of accomplishments added to the boys' curricula, and they note the relatively heavy household duties devolving at this age on many girls. I see in this passage light for the future and a sense of the reality of things, which cheers me almost as much as the sight of a flowering shrub upon the walls of one of those gaunt buildings with which we are so familiar.

Early Adolescence.

Still keeping our attention to the official side of the medical problems, we pass to the age of early adolescence, 14–16 years, and to the time when the child leaves the supervision of the school medical officer and has the choice of occupation immediately ahead. Everyone recognises that this is a critical period in life, and it is unfortunate that just at this time there is a break in the continuity of official supervision. The school medical officer is left and the National Insurance has not begun.

Factory Surgeons.

We come now to the factory surgeons, who are some of them school medical officers, and all of whom are encouraged by Sir George Newman to coöperate closely with those officers. These examine adolescents at 16 years entering factory life, and under that age those who enter such employment, including certain specified workshops, as requires an earlier training. Occupations which do not require a certificate of fitness constitute a weak link in the chain, perhaps more apparent because some three years ago the gap between 14 and 16 years was practically closed by the day continuation schools. The axe, however, fell, cutting through this slender neck and the young head of the school medical period tumbled into the basket of economy.

The report of the Departmental Committee issued this year shows, moreover, that the Factory Act has not proved satisfactory. In 1920 it was found that nearly 8000 individuals were rejected in the United Kingdom by the factory surgeons on medical grounds, and 576 of these for diseases of the heart and lungs. This clearly points to some leakage in that period between leaving school and applying for factory employment.

We see from this short outline of the official side of the medical problem that one of its most important duties is akin to that of the signal-men on our railway lines: at certain stages along the line of life these officials indicate danger and pull up the train. The medical practitioners and hospitals clear the track and endeavour to prevent further breakdowns.

Works Doctors.

There is another link, and one of increasing value in the chain of prevention. This is the appointment by many large industrial concerns of special medical officers, matrons, and nurses to supervise the health of their staffs. There cannot be any doubt that this link, forged though it may be on the anvil of strict business by the hammer of self-defence, must do great good, particularly when that service is far-seeing and kindly.

The General Practitioners.

As I have already stated, throughout their early life the doctor in general practice is taking an unobtrusive yet important part in attending rheumatic children, but as Dr. Carey Coombs has suggested, they could offer more special assistance by the formation of voluntary groups in various districts around some great city. In this way some point under investigation in the city hospital such as the incidence of the disease in certain areas or the appearance of a local epidemic, would enable them to use their special knowledge and experience.

When the insurance age is reached and, indeed, in every stage of life, the general practitioners who give time and interest to this particular subject can continue to furnish valuable data not otherwise to be obtained.

INCREASED COÖPERATION.

This raises a somewhat delicate subject, and my remarks must be looked upon as an expression of a purely personal view. Taking a broad outlook, there are three great medical forces in this country. The hospitals, with a magnificent history of past and present work but financially unstable; the Ministry of Health, young and powerful, with immense resources and advantages; and the general practitioners, with the all-important assets of experience of the dawn of disease and intimate acquaintance with their patients. Each can take a most valuable part in the prevention of acute rheumatism, but greater results are to be expected if these forces can be drawn closer together. Greater organisation between them would, in my opinion, enhance the value of the School Medical Service, which appears to me often to be in the position of a doctor whose patient has been under a consultant's care and returned to him without a note of guidance. Looking to the future for one of these forces I can only see one fate, and this is that the hospitals become the strong right arm of the Ministry of Health. I use the word "strong" advisedly, for to be strong there must be wide liberty of thought and action, and not the suffocating growth of "officialism."

For my part I should like to see skilled officers, somewhat on the lines of our hospital medical registrars, but representatives of the Ministry of Health, linking up the cases and notes of the rheumatic patients in our hospitals with those of the school medical officers, and bringing to us hospital physicians the particular lines of thought and investigation under the consideration of the Ministry and in turn keeping the latter in intimate touch with hospital activities. In another direction, also, there are great possibilities, and that is in the coöperation of hospitals and almoners with the Board of Education and their army of voluntary workers and the child care committees. From the standpoint of the rheumatic children they would give great assistance in following up these cases when they leave the hospitals.

ENVIRONMENT.

The influence of environment upon the incidence of acute rheumatism is one of the problems in prevention which appears to me particularly to need more extensive investigation. This aspect is one which I always associate with the honoured name of Sir Arthur Newsholme, who showed us the importance of urban life as a factor in causation. Damp and cold houses and districts tend to make acute rheumatism drift into a chronic course, and it is my belief that a child returning from hospital after an attack to such surroundings is certainly in great danger of chronic invalidism and likely to die in a few years. I am also most suspicious of cold winds when there has been a spell of hot weather and much dust in the towns, this combination producing tonsillitis and increasing the incidence of acute rheumatism. The medical officers of health would have a prominent part in this investigation, and already to my knowledge they are taking the problem in hand; the care committees, too, should prove invaluable.

NOTIFICATION.

I believe that a partial and temporary notification might be helpful. General notification in the present state of our knowledge would probably lead only to great expense and confusion. It might, however, be advisable to notify acute heart disease in childhood or chorea, or, again, obvious cases of acute rheumatism up to a certain age and for a limited time.

Contagion is an aspect which at present I should not care to be brought into prominence, believing that it does not take an important part in the history of acute rheumatism.

EDUCATION OF THE PUBLIC.

Two directions suggest themselves by which we can better instruct the public: the first, by means of educational leaflets and lectures, to bring home to parents, patients, teachers, and labour employers the dangers of the disease; and the second, to assist them in choosing industrial occupations and in recognising the limitations of employees who have been partially maimed by acute rheumatism. The Ministry of Health could, I believe, render a great service if they would publish a leaflet for the guidance of the public, setting out in simple terms the dangers of acute rheumatism, together with some simple instructions. In the other direction, the assistance of the public in the problem of employment, we require the best possible organisation for providing information for the guidance of those who have rheumatic children to place in life, such as schedules of suitable employments.

It certainly should become increasingly difficult for such a case to occur as recently came under my care. This was an undersized girl of 20 years with obvious mitral stenosis who was working as a bottle labeller underground, often in wet clothes, and lifting heavy cases. As a result she was admitted with a complete cardiac breakdown from which she has never recovered.

THE LOCAL FOCUS.

The next point is the removal of local focal infection as a factor in prevention. On June 7th, 1900, a man, aged 28 years, came to St. Mary's Hospital suffering from a sore-throat. The condition was one of acute tonsillitis and he had mitral and aortic disease, arthritis and muscular pains. There was a previous attack of rheumatic fever four years before. Dr. A. Paine, by plate culture, isolated a strepto-diplococcus morphologically and culturally indistinguishable from that we had isolated from the lesions of acute rheumatism. Intravenous injections into a rabbit produced acute aortic and mitral endocarditis. Fitz-Meyer, two years later, by extensive experiments supported these results, and later with Mr. George Waugh we repeatedly verified the ability of this micrococcus obtained from unhealthy tonsils to produce cardiac and arthritic lesions without any previous injury to the valves. This was the birth of the "local focus" in rheumatism.

No one can be *more* convinced than I am that the rheumatic infection has one important site of entry into the system, through diseased tonsils and particularly those which resemble in their deep lacunæ culture tubes. No one probably is *less* convinced than I that wholesale removal is indicated in the rheumatic child, or that the removal of the local focus shuts the door. Nature is not so easily managed, and I have seen severe carditis in a first attack occurring some years after a complete enucleation. Recent American statistics bear out this experience. I look upon the tonsils as an important barrier, but as

no man is more dangerous than a clever man who has lost his capacity, so are badly damaged tonsils a constant source of danger. Careful treatment of the throat, naso-pharynx, and teeth in the prevention of acute rheumatism will be, in my opinion, a permanent factor. More investigation is required to determine other local foci as equally definite.

RESEARCH.

That further research is essential to advance the prevention of acute rheumatism is generally admitted. Opinions as to the best method for obtaining results will naturally differ, and I can but express my own views. I think there should be some institution in which the study of "rheumatism" should be continued uninterruptedly. In a centre such as London I would have this institution concerned with the entire problem of rheumatic affections, for it is my experience that in research one is liable if following a particular line to reach a dead end; some fact or some technical detail is lacking or the brain becomes wearied. Then one needs to leave that line for a time and to work in other directions, returning later refreshed with new ideas or with new equipment. The problem of "rheumatism" would always have open spaces; now there might be fresh light thrown on malignant endocarditis, now a discovery in the bacteriology of rheumatoid arthritis or some chemical advance bearing upon fibrositis. Thus the vitality of the research would be kept active. Such an institution could be organised for training investigators and putting them in touch with our great hospitals and infirmaries, and would have at hand an ample literature. I admit the scheme is ambitious, but I am looking ahead.

A PRECIPITIN METHOD FOR THE STANDARDISATION OF "OLD" TUBERCULIN

AND THE EXPRESSION OF RESULTS IN STANDARD UNITS.

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OLD tuberculin, since its discovery by Koch in 1890, has been used extensively as a diagnostic, prognostic, and therapeutic agent in tuberculosis. Unfortunately, the proportion of the active principle of tuberculin present in different samples is not constant—as judged by the reactions they produce—but varies considerably, even when the method of preparation is more or less standardised. It is apparently influenced by several factors, such as the strain of *B. tuberculosis* used, the composition of the medium, the age of the culture, and the method of concentration. Although the active principle has not yet been isolated, numerous methods have been used to estimate the relative amounts of it present in different samples of tuberculin. The fact that its use is attended with some danger—an excessive dose may produce a severe general reaction—makes it necessary, in clinical work, to know with reasonable accuracy the strength or toxicity of each sample used; and in scientific work it is, of course, imperative, in order to obtain comparable results.

Methods of Standardisation in Present Use.

The methods of standardisation in vogue at present are:—

1. The determination of the lethal dose for tuberculous guinea-pigs. This is the official German method as used by the Staatsinstitut für Experimentelle Therapie in Frankfurt A/M.[1 2 3]

2. Von Lingelsheim's intracerebral method on normal or tuberculous animals.[4]

3. The quantitative von Pirquet, and the intradermal reaction on tuberculous guinea-pigs.[5 6]

4. The quantitative von Pirquet on human tuberculous subjects.[7 8]

The methods depending on the use of tuberculous animals have certain inherent disadvantages. Tuberculous guinea-pigs, even though infected at the same time with the same amount of inoculum, may show great variation in the extent of the resulting lesions. And even when the lesions are apparently similar the animals may show great variation in sensitiveness to the same dose of the same tuberculin. Therefore, in order to obtain reasonably accurate results it is necessary to use a large number of animals—which makes the method troublesome and expensive. These disadvantages apply even to the intradermal test, where both the standard and unknown tuberculin are used on the same animal, because different parts of the skin vary greatly in sensitiveness. Furthermore, unless the animal is in exactly the right stage of sensitisation the reaction may be very ill-defined; and even at best it is often difficult, if not impossible, to distinguish between two lesions caused by two different dilutions of the same tuberculin, unless the one is at least double the strength of the other.

Von Lingelsheim's method has the advantage that it can be used on normal animals, but it is applicable only to tuberculin which is free of glycerine, the latter being highly toxic for the nerve cells. The most satisfactory in vivo test is probably the quantitative von Pirquet, on human cases of tuberculosis, as modified by Ellermann and Erlandsen,[7] or by Cummins.[8] Even in this test it is difficult to distinguish between the lesions produced by the same quantity of two dilutions of the same tuberculin of less than 100 per cent. difference in strength. Furthermore, the test may be accompanied by some inconvenience and discomfort to the patient, as the lesions frequently persist from a week to a month before disappearing.

In consideration of these difficulties, it would obviously be of great advantage to have an in vitro test for the standardisation of old tuberculin. The complement-fixation reaction has been applied for this purpose, but the number of reagents employed and the difficulty of standardising them bring in several unavoidable sources of error which would tend to preclude it from being a satisfactory quantitative test.

It seemed to us that an in vitro test, involving the least possible number of reagents, whereby it would be possible readily and accurately to compare tuberculins of unknown strength with an established standard would be desirable, and that a precipitin test was likely to fulfil these requirements.

Precipitating Power of a Serum for Tuberculin.

The first difficulty which presented itself was to obtain a serum of high precipitating power for tuberculin. Calmette[9] and others have prepared sera which would precipitate tuberculin, and we obtained two samples of serum which had been prepared by immunisation of a horse with the whole bacillus. We found that their precipitating power for tuberculin was relatively weak, and furthermore, as Calmette had previously found, that the precipitation was not specific, since the serums precipitated mallein to about an equal extent. It was found that by the use of diaplyte (defatted) *B. tuberculosis* vaccine[10] to immunise a horse, a serum could be obtained which had a high precipitating power, not only for its specific precipitinogen, obtained by digesting the diaplyted bacilli with trypsin, but also against old tuberculin. It did not precipitate mallein, diphtheria toxin, or concentrated broth controls; its precipitating power for tuberculin was from 200 to 800 times as strong as that of the other serums which we tried.

However, the preliminary quantitative experiments showed that in comparing two tuberculins, very discrepant results were obtained, depending on the

relative quantities of serum and tuberculin used. Using concentrated tuberculin, or dilutions up to about 1 in 50 with a constant quantity of serum, the precipitation increases with decreasing amounts of tuberculin; but with high dilutions, ranging from 1 in 500 to 1 in 30,000, depending on the strength of the tuberculin, the degree of precipitation decreases with the quantity of tuberculin present. This being the case, it became necessary to work out in detail the whole quantitative relationship between serum and tuberculin. The details of these experiments, which are chiefly of theoretical interest, will be published later. The practical outcome of them was that it was found possible to measure with considerable accuracy the strengths of different dilutions of the same tuberculin or of different tuberculins.

Technique.

The technique which we have evolved for the standardisation of tuberculins by the precipitin method will now be described in detail.

(A) *Reagents and Apparatus Required.*

(1) Standard tuberculin; (2) standard precipitating serum; (3) normal saline for diluting serum and tuberculin; (4) Dreyer agglutination tubes and stands; (5) accurately graduated measuring pipettes, Dreyer dropping pipette, and dilution tubes; (6) water-bath, 37·5° C.; (7) artificial-light arrangement for reading tubes against dark background; (8) six-magnification hand lens.

Details are as follows:—

1. The standard tuberculin we have used is the German Standard Tuberculin, kindly supplied by Geheimrat Prof. Dr. Kolle. It is the standard used by the Staatsinstitut für Experimentelle Therapie, Frankfurt A/M.

2. The precipitating serum, as stated above, was obtained by immunising a horse with diaplyte *B. tuberculosis* vaccine. The horse received weekly injections, intravenously, of doses increasing from 0·1 mg. to 225 mg., over a period of three months.

3. The sterile normal saline is prepared by dissolving 9·0 g. of chemically pure sodium chloride in 1000 c.cm. of freshly distilled water, and immediately sterilising in the autoclave.

4. The agglutination tubes employed are those used for the Dreyer agglutination technique. The inside diameter of these tubes is 5·5–6·2 mm.; the outside diameter is 6·6–7·2 mm., and the length is 58 mm. The bottom is conical and the top is flanged to facilitate filling. These tubes, and all other glassware, must be thoroughly cleaned in acid, and then washed in distilled water until all traces of acid are removed. The tubes are then sterilised by dry heat. Agglutination stands containing three rows of 20 holes for agglutination tubes are the most convenient.

5. Pipettes, accurately graduated to *contain* 0·1 c.cm., 1·0 c.cm., 5·0 c.cm., and 10·0 c.cm., respectively, are required. The Dreyer dropping pipette, as used in the standard agglutination technique, has a total length of 19 cm., length of capillary portion, 2·8 cm.; outside diameter of body of pipette, 5·0–5·4 mm.; outside diameter of capillary portion, 2·36–2·41 mm.; bore of capillary portion, 0·5 mm. The dilution tubes are test-tubes, 18 by 2·5 cm., without lips. They are sterilised by dry heat without plugging.

6. The water-bath must be regulated to maintain a constant temperature of 37·5° C., and should be provided with a device to keep the water-level constant. A satisfactory arrangement is described by Dreyer and Ward.[12]

7. An artificial-light arrangement for reading the tubes is essential, and it should be used in a darkened room. An adjustable lamp, fitted with an ordinary plain conical shade, covered on the outside with dull-black paper, is suitable. The end of the bulb should not project appreciably beyond the edge of the shade, and the lamp should be so arranged that the observer does not look directly into the light. The tubes to be read are held against the edge of the shade, the lower end tilted towards the observer, and the meniscus of the fluid in the tube should be slightly above the lower edge of the shade. It is desirable to place a dull-black cardboard on the table, and another resting against the farther edge of the lampshade, so that the observer may look through the tube against a dark background. A frosted bulb of 20 candle power is satisfactory. A stronger light obscures the finer degrees of precipitation, and should not be used.

8. A compound six-magnification hand lens of reputable make.

(B) *Method of Diluting the Tuberculin.*

Seven dilution tubes are placed in a stand and sterile saline is measured into them, the first receiving 9·9 c.cm., and each of the others 10·0 c.cm.; 0·1 c.cm. of tuberculin is measured in the 0·1 c.cm. pipette. The outside and tip of the pipette are wiped free of tuberculin, and the contents are blown out into the first tube. The viscous tuberculin sticks to the walls of the pipette, and must be washed out by carefully aspirating the mixture in the tube and blowing out again. To ensure thorough washing of the pipette, this should be done 30 times. For this purpose it is convenient to use a teat. If the supply of tuberculin is not limited, this first dilution may be made in a similar manner, using 99 c.cm. of saline and 1·0 c.cm. of tuberculin. Having thus obtained a 1/100 dilution, further dilutions of 1/300, 1/900, 1/2700, 1/8100, and 1/24300 are made as follows. With the 5·0 c.cm. pipette measure, 5·0 c.cm. of the 1/100 dilution into tube 2. Wash the pipette in the dilution by aspirating several (at least 10) times, and after thorough mixing, carry over 5·0 c.cm. of this dilution into tube 3, and so on until the required number of dilutions has been made.

(C) *Method of Setting Up Test.*

Place a row of 20 agglutination tubes into the stand. With the standard dropping pipette, measure out into the tubes the following quantities of saline, tuberculin dilution, and serum dilution in the order named. (See Table I.)

TABLE I.

Tube No.	Saline (drops)	Tuberculin.	S. (drops)	Tube No.	Saline (drops)	Tuberculin.	S. (drops)
1	3	12	5 1/4	11	3	12	5 1/4
2	5	10	"	12	5	10	"
3	7	8 Drops 1/300	"	13	7	8 Drops 1/2700	"
4	9	6	"	14	9	6	"
5	10	5	"	15	10	5	"
6	3	12	"	16	3	12	"
7	5	10	"	17	5	10	"
8	7	8 Drops 1/900	"	18	7	8 Drops 1/8100	"
9	9	6	"	19	9	6	"
10	10	5	"	20	10	5	"

S.S. = Standard Serum.

One and the same pipette must be used throughout the whole operation. When changing from one reagent to another, or from one dilution to another, the pipette should be carefully washed out with distilled water, and dried by washing through with acetone, followed by gentle heating over a Bunsen burner. The use of an ordinary suction pump will greatly facilitate the washing and drying of the pipette.

When the reagents have been added to the tubes shake each one thoroughly in order from right to left—i.e., beginning with the tube containing the highest dilution of tuberculin. Place the stand in an *open water-bath* (not in a dry-air incubator) at 37·5° C., and arrange the water level so that the *column of fluid in the tubes is only one-half to two-thirds immersed.* Precipitation is greatly facilitated by this procedure.

It is desirable to put up each of the unknown tuberculins to be tested and each of the standards in duplicate. Two or more standard tuberculins should be used in each test, but if only one is available four or five dilutions of it should be made up independently to secure a true average of the readings of the standard tuberculin. As a general rule, it is necessary to put up only 15 tubes in each row—using the dilutions 1/900, 1/2700, and 1/8100 or 1/2700, 1/8100, and 1/24300. With strong tuberculins it is necessary to use the higher dilutions, and all but the very weak ones will show a good reaction in the 1/900 dilution after nine hours' incubation. In the case of very weak tuberculins on the other hand, one may have to begin with dilutions of 1/100, 1/300, &c. If the lower dilutions of strong tuberculins are used, a precipitate will come down almost immediately after the serum is added, but different tuberculins are found to have different reaction times, and the end-point is not usually reached until after nine hours' incubation. If left for a longer time the precipitation loses some of its sharpness, and is more difficult to read; also the danger of infection becomes greater.

(D) *Reading of Results.*

The tubes are read in the manner already indicated under (A) 7. To secure uniform readings by different observers it is desirable to use permanent tubes showing standard and trace precipitation for comparison. The principal terms used in describing the different degrees of precipitation met with are: Total (T), standard (S), trace (tr), and nil (0). Total precipitation indicates a condition where the fluid in the tube has become quite clear, with a relatively large bulk of precipitate settled down at the foot of the tube. Standard indicates a degree of precipitation that can be seen readily with the naked eye. The fine particles are evenly distributed, of uniform size, and definitely separated from one another. Trace is the term applied to a very fine precipitation, barely visible to the naked eye, but readily visible with the six-magnification lens. Nil indicates that no

visible precipitation has taken place, though the fluid may show some opacity.

Naturally there are degrees of precipitation which fall in between total, standard, trace, and nil; total minus (T−), where the fluid is clear, and the particles are large and well separated, and some have fallen to the foot of the tube. On either side of standard precipitation there is standard plus (S+) and standard minus (S−). In the former the particles are larger than those seen in standard precipitation; they are uniformly distributed, and clarification is more marked: in the latter is seen a finer precipitation than standard. Similarly, there is a trace plus (tr+) and a trace minus (tr−), the former representing something more than a trace but less than a standard minus, and the latter being a very fine degree of precipitation visible only with the six-magnification lens. In addition, a condition where there is only a very slight opacity, or an extremely fine degree of precipitation, barely visible with the six-magnification lens is designated as trace query (tr ?).

(E) *Expression of Results in Standard Units.*

The strengths of all tuberculins are expressed in standard units. We have chosen the Frankfurt standard tuberculin as the standard comparison, and have arbitrarily assigned to it a value of 100 units per c.cm. The value of any other tuberculin in standard units is inversely proportional to the smallest amount required to produce the same degree of precipitation as the standard with the same quantity of serum under the same conditions. Thus, if twice the quantity of tuberculin X is required to produce the same degree of precipitation as the standard tuberculin under the same condition, its strength is one-half of the standard—i.e., 50 units per c.cm.

(F) *Calculation of Units.*

The unit value is calculated from those tubes in the series which show standard and trace precipitation respectively. The unit value is calculated for each of these two tubes separately, and the average is taken as the unit value of the tuberculin. If there are no tubes in the series showing exactly standard and trace precipitation, it is necessary to interpolate for these values—e.g., if tube 4 shows S+ and tube 5 shows S−, S would be intermediate between them. In Tables II., III., IV., and V. are shown the method of recording readings and calculating results.

TABLE II.—*Examples of Readings.*

Tube No.	Tuberculin— Quantity in drops.	Standard.	"A"	"B"	"C"
		Dilution 1/900.			
1	12	T	T	T	T
2	10	T	T−	T	T
3	8	T	S	T	T
4	6	T	S−	T	T
5	5	T	tr	T−	T
		Dilution 1/2700.			
6	12	T−	tr−	S	T
7	10	S+	tr ?	S−	T
8	8	S	0	tr	S+
9	6	S−	0	tr −	S−
10	5	tr	0	tr ?	tr +
		Dilution 1/8100.			
11	12	tr −	0	0	tr −
12	10	tr ?	0	0	0
13	8	0	0	0	0
14	6	0	0	0	0
15	5	0	0	0	0

TABLE III.—*Calculation from Standard Readings given in Table II.*

Tuberculin.	Quantity of tuberculin in drops.	Reciprocals.	Units.
Standard ..	8 × 1/2700 = 0·00296	338·0	100
"A"	8 × 1/900 = 0·00889	112·5	33
"B"	12 × 1/2700 = 0·00445	222·5	66
"C"	7 × 1/2700 = 0·00259	386·0	114

TABLE IV.—*Calculation from Trace Readings given in Table II.*

Tuberculin.	Quantity of tuberculin in drops.	Reciprocals.	Units.
Standard ..	5 × 1/2700 = 0·00185	540	100
"A"	5 × 1/900 = 0·00555	180·5	34
"B"	8 × 1/2700 = 0·00296	338	63
"C"	13·5 × 1/8100 = 0·00167	600	111

TABLE V.—*Average of Standard and Trace Calculations in Tables III. and IV.*

Standard tuberculin	= 100·0	units	per c.cm.
Tuberculin "A"	= 33·5	,,	,,
,, "B"	= 64·5	,,	,,
,, "C"	= 112·5	,,	,,

For the accurate measurement and standardisation of tuberculin it is desirable—as in all other quantitative work—to make several determinations and to take the average as the final figure. We find that at least five determinations are required to give accurate results. Fresh dilutions should be made for each determination. The standard tuberculins must, of course, be put up each time with the unknown tuberculin, because slight variations in the time of incubation and in the temperature and water level of the water-bath have an appreciable effect on the degree of precipitation. Although the actual readings of any tuberculin may vary slightly from day to day its value, relative to the standard, should remain constant.

(G) *Precautions to be Observed.*

1. The serum must, of course, be absolutely clear and sterile. We have found that the Seitz laboratory filter is very efficient and satisfactory for removing sediment and contamination from serum, and it does not take out the precipitin. The serum must *not* be heated. The extent to which a serum may be diluted to give satisfactory precipitation will vary with its strength. The serum we have used gave good results when diluted 1 in 4.

2. Antiseptics, such as phenol, trikresol, or formalin should not be added to any of the reagents, as experiments have shown that when these antiseptics are present in a concentration sufficiently great to prevent bacterial growth, they interfere with the reaction and change the character of the precipitation.

3. The agglutination tubes which are used for the test must be of the diameter laid down. If tubes of larger diameter are used, the character of the precipitate changes and does not give sharp readings.

4. All glassware must be scrupulously clean.

5. The water-bath must be *open* and the temperature must be accurately regulated, and must be kept constant at 37·5° C. The water level must be carefully adjusted, so that only one-half to two-thirds of the column of fluid in the tube is immersed.

Results.

A series of carefully prepared dilutions of a sample of old tuberculin were made up by one of us and labelled *n*, *o*, *e*, *y*, and *x* respectively, and were tested and calculated by the other who did not know the key. In Table VI. are given the actual strength of the solutions, and the values found on a single determination.

TABLE VI.

Tuberculin labelled.	Tuberculin unit per c.cm.	Tuberculin unit per c.cm. found by precipitin test.	Percentage deviation.
n	100	93·28	6·72
o	45	46·58	3·51
e	27	27·59	2·19
y	12	12·12	1·00
x	5	5·04	0·80
		Average	2·84

Having thus established the theoretical accuracy of the method, it was necessary to compare different samples of old tuberculin to see whether the degree of precipitation depended entirely on the amount of active principle of tuberculin present, or if it were influenced by the proportion of peptone, salts, and glycerine in various samples. There appeared to be no correlation between the degree of precipitation and the amount of non-specific material in the tuberculins. Thus it will be seen from Table VII. that the strength of sample British 6 is only about 11 per cent. of sample British 5, while its viscosity was found to be three to four times as great.

In Table VII. are given the results obtained by examining 30 different commercial tuberculins of varying origin, taking the Frankfurt standard tuberculin as our standard. It is at once seen that different commercial tuberculins may vary enormously in strength—namely, from 33·2 to more than 400 units per c.cm. Furthermore, it was found that certain

samples of tuberculin—namely, British 2, 3, and 4 alleged to be equal in strength to the Frankfurt standard—varied considerably. These tuberculins were found to contain 135·1, 33·2, and 46·0 units per c.cm. respectively, instead of 100·0. This being the case, it became necessary to test these samples, together with certain others showing great differences

TABLE VII.

TUBERCULIN.		Units per c.cm. precipitin test.	TUBERCULIN.		Units per c.cm. precipitin test.
Frankfurt standard (1).		100	Frankfurt standard (1).		100
British	2 ..	135·1	Belgian	22 ..	254·0
,,	3 ..	33·2	,,	23 ..	249·8
,,	4 ..	46·0	French	24 ..	50·9
,,	5 ..	244·7	,,	25 ..	62·0
,,	6 ..	100·5			
,,	7 ..	69·5			
,,	8 ..	119·6			
,,	9 ..	95·2	VETERINARY TUBERCULIN.		Units as above.
,,	10 ..	190·9	Frankfurt standard (1).		100·0
,,	11 ..	138·1			
,,	12 ..	117·8			
,,	13 ..	271·3	British	26 ..	6·4
,,	14 ..	60·0	American	27 ..	14·8
,,	15 ..	35·4	,,	28 ..	29·6
Oxford	16 ..	44·1	,,	29 ..	131·3
German	17 ..	39·6	Belgian	30 ..	19·8
American	18 ..	269·0	French	31 ..	18·3
,,	19 ..	304·8			
Danish	20 ..	421·6			
,,	21 ..	47·5			

in strength by a recognised in vivo method, to find out if the results obtained by the precipitin test were borne out by the in vivo test. In our hands the quantitative von Pirquet reaction on human cases of tuberculosis gave the most satisfactory results, and it seemed likely that from the point of view of diagnosis and treatment of tuberculosis in man by means of tuberculin this method of standardisation should prove of greater value than tests on animals.

In our experiments, Cummins's modification of the von Pirquet reaction was used. A metal plate, 1·5 mm. in thickness, with a circular hole 4·0 mm. in diameter, is pressed firmly on to the forearm, so that the skin seen through the hole presents a slightly convex surface. The epidermis is scratched off within the circle by a sharp surgical needle, exposing the *cutis vera*. The scratching must not be sufficiently deep to draw blood. Two parallel rows of six scratched areas are prepared in this way, and six dilutions containing 2, 4, 8, 16, 32, and 64 per cent. of tuberculin respectively are rubbed gently into the exposed cutis using the blunt end of the needle, which has been previously dipped into the tuberculin. The standard tuberculin is applied to one row and the unknown to the other. The reactions are read at the end of 24 and 48 hours—by direct comparison of the lesions produced by the standard and unknown tuberculin. The intensity of the reaction is judged by the infiltration, colour, pustule formation, &c.

Each series of dilutions of each tuberculin was marked with a different letter, before being given to the persons (A. D. G. and F. G. H.) who carried out the test on the patients. The tests were read independently by G. D. and A. D. G., and the key to the tuberculins was in no case divulged until the final readings had been made.

In Table VIII. are given the result of the in vivo test of ten of the tuberculins recorded in Table VII. The results are expressed in standard units per c.cm., taking the Frankfurt standard tuberculin as equal to 100 units. The letters *a*, *b*, and *c* indicate tests on different patients. Each figure given in columns 3 and 4 represents the average of from two to five readings on the same patient. The individual readings from which the averages were obtained varied in some cases as much as 400 per cent. In columns 5 and 6 are given the average of all readings made by G. D. and A. D. G. respectively, and in the last column the average of all the readings made by the two observers. From the table it is seen that the results obtained by two different persons reading the same test may vary considerably, and that the values found for the same tuberculin when tested on different patients may show marked variations.

TABLE VIII.—*Human Cutaneous Test.*

Tuberculin.	Test.	Units per c.cm.				
		Read by—		Average of readings.		Average of readings by G.D. and A.D.G.
		G.D.	A.D.G.	G.D.	A.D.G.	
F.S.	1 —	*100·0*	*100·0*	*100·0*	*100·0*	*100·0*
Brit.	2 *a*	110·1	137·0	110·1	137·0	123·6
,,	3 *a*	36·4	24·6	44·9	50·5	47·7
,,	3 *b*	53·4	76·4	—	—	—
,,	4 *a*	55·2	62·6	41·9	50·1	46·0
,,	4 *b*	28·6	37·6	—	—	—
,,	5 *a*	200·1	207·2	200·1	207·2	203·7
,,	6 *a*	57·5	81·9	57·8	74·0	65·9
,,	6 *b*	58·1	66·1	—	—	—
Ger.	17 *a*	83·3	102·5	75·3	80·7	78·0
,,	17 *b*	88·1	104·1	—	—	—
,,	17 *c*	54·6	35·4	—	—	—
Amer.	18 *a*	474·0	689·4	395·2	475·4	435·3
,,	18 *b*	316·5	327·5	—	—	—
,,	18 *c*	395·0	409·4	—	—	—
Dan.	20 *a*	237·6	109·1	237·6	109·1	173·4
,,	21 *a*	34·1	51·1	69·0	48·2	58·6
,,	21 *b*	98·8	42·3	—	—	—
,,	21 *c*	74·0	51·1	—	—	—

F.S. = Frankfurt Standard. Brit. = British. Ger. = German. Amer. = American. Dan. = Danish.

In Table IX. are recorded the results obtained by the precipitin and the in vivo tests respectively. It

TABLE IX.

Tuberculin.		Units per c.cm.		Deviation of B from A in per cent.
		A. Precipitin test.	B. Human cutaneous test.	
Frankfurt standard	1	*100·0*	*100·0*	0·00
British	2	135·1	123·6	− 8·51
,,	3	33·2	47·7	+ 43·68
,,	4	46·0	46·0	0·00
,,	5	244·7	203·7	− 17·77
,,	6	100·5	65·9	− 34·43
German	17	39·6	78·0	+ 96·98
American	18	269·0	435·3	+ 61·83
Danish	20	421·6	173·4	− 58·87
,,	21	47·5	58·6	+ 23·37
Average	..	.. ..	.. ..	34·54

is seen that in the case of the Frankfurt standard tuberculin, and British 2, 3, and 4, the differences in strength found by the precipitin test is entirely borne out by the in vivo test. On the whole, the results obtained by the two methods run parallel. The average percentage deviation of the in vivo test results from those obtained by the precipitin test was found to be 34·54 for the ten tuberculins recorded.

From the data presented above, it seems justifiable to suggest that a satisfactory in vitro reaction for the standardisation of old tuberculin has been devised. There may be certain possibilities of error, as in the case of the standardisation of diphtheria toxin by Ramon's precipitation method,[11] where it is found that the change of the toxin to the toxoid by chemical or physical influences is not accompanied by any change in the precipitating properties of the toxin. We have been unable to detect any change either in the toxicity, as tested on tuberculous guinea-pigs, or in the precipitating properties of old tuberculin, when subjected to a temperature of 0° C. for six months, or to a temperature of 100° C. for 15 days, or to autoclaving for two hours at two atmospheres. Tuberculin, therefore, seems to be comparatively stable to temperature changes, and under ordinary condition, the precipitation and in vivo tests on any sample

should continue to run parallel. If this is borne out by a longer series of experiments, the great advantage of the in vitro test is obvious. The time and expense required is reduced to a minimum, and a very high degree of accuracy can be obtained by comparing each unknown tuberculin with the standard tuberculin using a precipitating serum of standard strength.

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EXTENSIVE HÆMORRHAGE INTO THE PITUITARY

IN A CASE OF ENCEPHALITIS LETHARGICA.

BY L. P. DE COSTOBADIE, F.R.C.S. ENG.

With a Report on the Morbid Anatomy by

B. J. RYRIE, M.B. EDIN.,

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AN autopsy on a case of encephalitis lethargica showed a condition of the pituitary gland which, we think, has not been described hitherto. On opening the skull the cerebral fluid was found to be under considerable pressure, and the pia slightly injected. When the brain had been removed, the pituitary, which was enlarged to about five times the normal size, was seen to bulge up out of the sella turcica as a soft purple-coloured tumour; the bony cavity was, however, not enlarged nor the bone eroded. The gland and mid-brain were examined microscopically by Dr. Ryrie, whose report follows. The brain showed beyond doubt that the patient was suffering from encephalitis lethargica. The pituitary showed an extensive and recent hæmorrhage into the anterior lobe. The interest of the case, we think, lies not merely in the rare glandular condition, but in its association with a new and largely unexplained disease.

The Pituitary Gland in Relation to Sleep.

Amongst the theories put forward to explain pathological sleep, and applied notably to the lethargy which is such an outstanding feature of epidemic encephalitis, that which supposes a derangement of pituitary secretion has received some attention. The work of Cushing [1] and others showed the relation between experimental hypopituitarism and sleep, and the clinical phenomenon of periods of lethargy in patients suffering from hypopituitarism. Blair Bell [2] discusses the action of the pituitary secretion in hibernating animals, with their deposition of fat and subnormal temperature. And many cases of encephalitis lethargica have shown as residua obesity, polyuria, or Fröhlich's syndrome, suggesting that the toxin may injure the gland.[3]

Acting on these facts and suggestions, the gland has been examined in a few fatal cases of this disease, but with no conclusive results. Hall [4] gives references to several cases in the literature of congestion of the pituitary, thrombosis of veins, necrosis of cells, or partial hypertrophy, but the changes were so slight that no pathological significance could be attached with any certainty to the lesion.

Apart altogether from encephalitis lethargica, hæmorrhage into the gland, unless occurring when a degenerating tumour is present, is rare; we can find only one reference. Marchand [5] described it in a case of epilepsy, but the hæmorrhage was too small to enlarge the gland. We regarded the finding of this unusual tumour, therefore, as opening up several interesting problems.

Clinical History.

A brief summary of the case may be of interest, as it gives a striking and typical clinical picture of one form of the disease.

The patient, a man, aged 49, married and two children, was ill for a fortnight with marked insomnia, severe frontal headache, and occasional vomiting. Later he passed into a condition of restless delirium with violent choreiform movements; this alternated with profound stupor, when he would lie for hours motionless upon his back with waxy pallor, closed eyes, and mask-like face. He had the dry, furred tongue and fœtid breath usually present in severe cases. Ptosis was marked, he was at no time ever able to open his eyes. He had remission of symptoms with moments of unclouded intelligence during the four weeks before he died, also transient involvement of other cranial nerves. He had purulent conjunctivitis—I have noticed conjunctivitis of varying degrees of severity in 10 cases out of 97 that I have examined during the last epidemic. The optic discs and the visual fields were unfortunately not examined. The cerebro-spinal fluid was under increased pressure. The urine, which was not excessive, showed no sugar or other abnormality. The temperature was in the region of 101° F. for the first fortnight and then remained at 97°, rather a common feature, I think, of this disease. The pulse was unusually slow and he appeared to feel the cold unduly. The restlessness became more marked with much rigidity of the limbs, the patient became gradually weaker, and died six weeks after the onset of the disease.

The question may be asked, Is there any evidence from the previous history or from the present illness that the pituitary had been diseased for some time prior to the onset of the encephalitis? If the gland had been in a state of hyperplasia and then, as is often the case, had undergone degeneration we should expect evidence of hypopituitarism, and with a tumour as large as this, some "neighbourhood signs." There was, it is true, a vague history that during the past year headache had been complained of, and the eyesight had been deteriorating, but nothing more definite could be learned. The only suggestion that there was a deficiency of secretion was the patient's unusual hairlessness. Though pubic hair was present he had never shaved, and the skin was of that soft velvety type with much panniculus seen in cases of hypopituitarism. It is difficult to decide, therefore, on the actual cause of the glandular condition, but we think that its rarity and its occurrence in encephalitis lethargica, especially in relation to the

"pituitary theory" of sleep, makes it worth while recording. Sections of brain tissue confirm the diagnosis of encephalitis lethargica.

Condition of the Pituitary.

The pituitary, after alcohol fixation, weighed 3 g. The photograph shows its actual size and there is obvious shrinkage during fixation. On section the tissue appeared as a hæmorrhagic mass except for a small pale area posteriorly. Microscopically, the entire central part of the gland is hæmorrhagic, only a narrow ring of non-hæmorrhagic gland remaining at the periphery. This peripheral part consists partly of compressed pituitary tissue and partly of apparently normal tissue, and in this zone, as in the capsule, there is blood pigment giving the iron reaction with potassium ferro-cyanide.

Hæmorrhage into pituitary body. Actual size. The upper figure shows the appearance on section.

The hæmorrhagic zone is intersected by interrupted bands of structureless tissue corresponding in distribution to the original stroma, and apparently continuous with the unaltered stroma of the peripheral part. This tissue does not stain by Weigert's fibrin stain nor by methyl-violet, but does stain irregularly by Mallory's connective-tissue stain.

Partly free in the blood, and partly in definite relation to this stroma are many persisting pituitary cells, eosinophil, and fairly well preserved. The hæmorrhage is not sharply defined from the peripheral zone, and there is no evidence of organisation. It is recent, though not terminal. The posterior lobe is not involved. There is nothing in the sections to indicate pre-existent neoplasm or other abnormality. The adjacent cerebral vessels show atheroma and extreme medial calcification.

Whether the hæmorrhage has resulted from the encephalitis or not, the histological evidence indicates that in this case it occurred during the course of that disease.

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LIVER ABSCESS.

A SERIES OF SIXTY-FOUR CASES.

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THE recent papers on the subject of liver abscess by Manson-Bahr, Low, Pratt, and Gregg[1] and Neligan[2] make me think that this further series of cases may be of interest. Manson-Bahr and others, moreover, state that until recently the open operation was universally considered the correct surgical procedure. Neligan queries this, and asks: "Is not the aspiration treatment firmly established in tropical practice?" Certainly, as far as I am aware, it has been the operation of choice for at least the last ten years in Bengal; but apparently it is not so elsewhere, and I therefore wish to point out in this paper its many advantages. At the discussion of my original paper before the Medical Section of the Asiatic Society of Bengal in 1914, the chief criticism was directed upon my statement that the open operation was to all intents and purposes obsolete except under unusual conditions. As I desire here rather to prove the value of the aspiration treatment, only a short résumé of the cases is given (with remarks on those that are unusual). I have left the question of diagnosis, &c., untouched. This paper is, in fact, merely a continuation of my former one.[3] The cases which follow have all been operated on by myself, and the notes are from my own records. I mention this because hospital notes are not always as complete or exact as they might be.

Statistics of the Cases.

Of the above cases 63 were males with one female; 52 were Hindus, 11 Mahomedans, and one Britisher (my operative work since September, 1914, has dealt only with Indians). A history of dysentery was present in 44 cases, negative in 22; 29 cases were accustomed to take alcohol, 35 not. This is a large proportion, as most Indians are teetotallers. The age varied from 14 to 70, the average being between 30 and 40, but the majority of the patients were ignorant and doubtful about their exact ages. The duration of symptoms varied from five days to eight months; the former course was the most acute I have ever seen, the latter unusual, to which later reference will be made.

Of the total of 64 cases, 49 were treated by aspiration alone—in these are included three cases in which a preliminary cœliotomy was performed, as the diagnosis was doubtful; of these 40 were cured and 9 died. Four cases were aspirated, and later drained; there were no deaths. Nine cases were treated by incision, cleaning out of the abscess cavity with gauze, in some cases combined with irrigation, and the wound was then tightly sewn up in layers. In my first paper it was stated that the cases thus treated broke down later, but healing was very much hastened; in the above series it will be seen that several healed up without any complications and were rapidly cured. Again there were no deaths. Two cases were treated by incision and drainage; no deaths occurred.

The total death-rate for all methods amounts to 14 per cent. Taking the cases which were only aspirated, 28 were aspirated once, with 4 deaths; 12 were aspirated twice, with 3 deaths; 7 were aspirated three times, with 1 death; 1 four times, with a fatal result; and 1 five times, with recovery.

The largest amount of pus removed at any one aspiration was 96 oz., 3½ oz. more than my previous record, but over 100 oz. have been noted. The smallest quantity was 4 oz.; with multiple aspiration the largest amount was 220 oz. In the two cases in which drainage followed aspiration the pus amounted to 117 and 110 oz. respectively before the open operation was performed.

Rogers[4] has worked out the mortality from the open operation according to the site of the wound, giving 40·5 per cent. for the abdominal wall route and 73·4 per cent. for the chest wall route. There is something of a fallacy here, the important point being the site of the primary focus of the abscess; one, for example, deeply in the substance of the right lobe will be more difficult of diagnosis and be longer before being operated on, with greater destruction of liver tissue, than one on the anterior surface of either the right or the left lobe. This point is apparently not of so much importance with aspiration treatment. In the above nine fatal cases, four were operated on in the epigastrium, two in the nipple line in front, and only three laterally.

Summarising the figures somewhat roughly, there are 35 lateral operations and 25 epigastric, with four in abnormal positions; epigastric operations include both right and left lobe abscesses. In considering the cause of death in the fatal cases it is to be remembered that in this series all were advanced or very acute cases. In two cases there were multiple abscesses, combined in one with extensive ulceration of the bowel; two were practically moribund on admission and death occurred in a few hours; one

was in bad condition and succumbed to cardiac failure ten days after operation; one was a very acute case and died in three days; and one an old man of 70, with albuminuria and glycosuria. One was a case of recurrent abscess, with dysentery and phthisis, with death from recurring hæmoptysis. One patient was admitted with jaundice, developed pneumonia, and was probably a case of septic infection developing in an amœbic abscess before operation. Practically it almost amounts to this, that in uncomplicated cases there were no deaths.

Before proceeding to discuss treatment in detail, some unusual cases may be referred to: Case 19, an abscess pointing over the crest of the right ilium; treated by incision and suture, broke down, typical liver pus with living amœbæ discharged; the abscess was extra-peritoneal and had tracked down from the extra-peritoneal surface of the liver; Case 40, an abscess pointing in the right loin; Case 46, expectorating liver pus on admission.

Treatment.

It must be fully recognised that adequate treatment with emetine is as important as the operation. Neligan has noted the difference in comfort to the patient between the open operation and aspiration, but it may be as well to emphasise it again; on the one hand, you have the patient clothed in a mass of dressings and bandages in a moist heat which may be anything from 80° to 100° F., and on the other the patient unclothed with a scrap of cotton-wool and collodion over the aspiration puncture. Further advantages are: no frequent and often painful dressings, with risk of septic infection; the vast economy in dressings, to say nothing of time, both factors not to be neglected; and, moreover, the shortened period of the stay in hospital. In my uncomplicated cases with one aspiration it would be a week to ten days. The operative technique is remarkably simple, all that is necessary being an ordinary Potain's aspirator. General or local anæsthesia can be employed, depending upon the condition of the patient, preferably local, especially for cases in bad condition. The site of the puncture is important and should always be towards the upper surface of the abscess, particularly in epigastric cases. An abscess extending to the level of the umbilicus should be aspirated from above downwards from just below the costal margin, because as the pus is being evacuated the liver retracts upwards with great rapidity, and a puncture lower down may mean that all the pus will not be evacuated, to say nothing of the risk of breaking down adhesions and consequent escape of pus into the abdominal cavity. If an abscess is pointing, aspiration should be performed through as healthy skin as possible to prevent subsequent leakage.

I always have two bottles ready, and when one is full it is replaced by the other, so that the aspiration is practically continuous; an assistant, when the flow shows signs of weakening, uses the exhaust syringe without my closing the stop-cock on the tube attached to the cannula. If the flow is checked by the cannula becoming blocked the trocar is introduced again or a stylet. Every endeavour is made to empty the cavity completely, and the wall of the abscess should be searched over with the end of the cannula as the flow of pus diminishes; in this way a fresh pool may be found. When the aspiration is finished the puncture is sutured with one horsehair stitch to prevent any leakage and possible infection, and the wound dressed with cotton-wool and compound tincture of benzoin or collodion. I wish to emphasise what I consider a most important point, which has apparently been overlooked by the writers who quote my previous paper, and that is the subcutaneous injection of emetine immediately the aspiration is finished. My practice in the last few cases has been to inject the emetine while the aspiration is going on.

The reasons for this are that with the emptying of the abscess cavity there is a negative pressure set up, and later an effusion of serum into it from outside; if, therefore, this serum can be charged with emetine it will be able to attack the living amœbæ in the outer wall of the abscess, which it is most important to destroy. The amount of emetine employed was at first gr. 1, later increased to gr. 1½, and now gr. 2 are always given. Emetine was given in all but seven cases, the average total amount being gr. 5·7, unless the patient was in a very bad condition. I consider that the injection of quinine or emetine into the abscess cavity is of no value except in so far that the emetine may later be absorbed, and it is preferable to give it hypodermically. In cases which require further aspiration emetine is administered in the same way.

Cases Treated by Other Methods.

In the above series of cases it will be seen that 15 were treated by other methods, and it is necessary to explain the reason. First, there were four aspirated and subsequently drained. Case 26 was aspirated five times by myself, then handed over to a colleague when I went on service, and drained by him. Case 35 was obviously septic on aspiration. Case 49 had nine aspirations, then infection through puncture. In Case 57 aspiration was unsatisfactory—epigastric abscess; I incised small cavity on the surface of the liver; hæmorrhage, gauze packing; if there had been no hæmorrhage the wound would have been sutured.

Secondly, two cases were incised and drained at once. Case 30, a doubtful swelling; the liver exposed and aspirated, no pus; recent adhesions broken down; abscess largely subdiaphragmatic; risk of peritoneal infection, hence drained. Case 40, skin adherent and inflamed; wound of attempted operation by village practitioner; sepsis.

Thirdly, nine cases were treated by incision, cleaning out the cavity with gauze and primary suture. This operation was first performed by myself over 12 years ago, and is a very useful procedure, particularly in those cases in which the diagnosis is doubtful or the swelling is in an abnormal position. A fairly common class of case is one in which there is an indefinite swelling in the epigastrium with a doubtful history, and to plunge an aspirator needle into this swelling on the off-chance of its being a liver abscess would be very unsound surgically. This operation covers the difficulty; in fact, in some cases I am inclined to believe it is the operation of choice. One point about it is that the possibility of infection through a drainage-tube is avoided, and there are no frequent dressings. Cases 14, 19, 27, 33, 34, 35, 43, 48, and 60 were thus treated; seven were of doubtful diagnosis and two in abnormal positions; seven healed by first intention, only two of which later broke down.

Manson-Bahr and others lay stress on the importance of a course of emetine-bismuth-iodide after operation. I have not been able to give this, chiefly on account of the financial condition of the hospitals of which I have been in charge, and, moreover, native patients rarely stop in hospital after they consider themselves cured. As regards the amount of emetine, gr. v. to x. should be ample. I consider the amount of emetine administered is often too great; speaking generally it acts as a specific or not at all, and I am certain that giving a big dose during the aspiration is most important. If an abscess has once formed emetine will limit its extension and quiet down symptoms, but not cure it; if there is suspicion of an abscess it is better to aspirate to be on the safe side. Case 33 was an example of the failure of emetine.

Considering that the total mortality of this series of unpicked cases in natives is only just over 14 per cent., I see no reason why it should be more than 5 per cent. in early uncomplicated cases with adequate treatment.

It may be of interest to quote the cases in my first paper treated by aspiration alone. They were 50 in number, with 38 recoveries and 12 deaths; the

earlier cases were treated with ipecacuanha, the latter with emetine, but not so efficiently as is done now. Combining the two sets of figures: of 99 cases, 78 were cured, equalling 77·7 per cent., and 21 deaths, mortality-rate 22·3 per cent. Compare these with Rogers's figures of the open operation, giving a mortality of nearly 60 per cent.

Summary.

To conclude, aspiration combined with hypodermic exhibition of a large dose of emetine *at the time* is the operation of choice.

In cases of doubtful diagnosis, explore and either aspirate or clean out the cavity and suture the wound firmly. Emetine should be given at the same time. Drain only as a last resource, the sole indication being sepsis.

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Clinical and Laboratory Notes.

TWO CASES OF EARLY AND LATE ANAPHYLACTIC PHENOMENA AFTER ADMINISTRATION OF DIPHTHERIA ANTITOXIN.

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IN view of the apparent rarity of true anaphylactic phenomena, it may be of interest to mention two instances of what would appear to be definite cases illustrating the peculiar reaction which may result from the injection of serum, the sequelæ being alarming, but fortunately not fatal.

CASE 1.—Girl, aged 12¼ years, admitted to City Hospital, Hull, suffering from a moderately severe attack of diphtheria. The history indicated that she was in the third day of the disease, with the usual onset. Membrane was present on both tonsils, right posterior faucial pillar, left side of uvula, and extending on to soft palate. Glands of neck on both sides much enlarged. Heart sounds normal. Throat culture definitely positive.

Shortly after admission the girl received an injection of 10,000 units of antidiphtheritic serum subcutaneously in the lower part of the abdomen. Within about five minutes of this injection a well-marked blotchy urticarial erythema appeared, involving the face, body, and extremities almost simultaneously. The œdema of the upper and lower eyelids was intense, and prevented opening of the eyes. The patient was obviously in distress, and the pulse at the wrist became practically imperceptible. She placed her hand over the heart and indicated cardiac embarrassment. The bed was tipped, brandy was administered by mouth, and hypodermic strychnine, gr. 1/60, was given without immediate improvement. The patient throughout was able to speak rationally and without effort. The heart sounds became very faint and the first sound in the mitral area was just audible. No increase or diminution of pulse-rate was noticed. The rash varied, as time went on, in intensity and colour, especially on the face and extremities, more particularly the former.

After about two hours the heart commenced to improve, although the pulse was very thready, soft, and of poor quality, but countable. Within four hours the rash commenced to fade, more particularly on the body, and the œdema of the eyelids became gradually less. At the same time the pulse showed an improvement. Within ten hours of the commencement of these phenomena the rash had completely disappeared without staining, and the patient appeared comfortable, the pulse being definitely improved.

It would appear that this patient had 8000 units of antitoxin one year nine months previous to the above-mentioned injection of serum for diphtheria without any ill-effects. No indications whatever existed of asthma.

The patient had an uninterrupted recovery with no complications and was discharged from hospital within 11 weeks.

CASE 2.—Nurse, aged 24 years, was admitted to City Hospital on May 6th, 1924, suffering from diphtheria. She would appear to have been ill for 24 hours. Membrane was present on the right tonsil as an early and slight deposit. Culture from the throat was definitely positive. She received a sensitising dose without ill-effects, and 6000 units of A.D.S. at 11.30 A.M. The following morning she had an extension of membrane from the right tonsil on to the soft palate and right posterior faucial pillar. Membrane also present on the left tonsil, patchy, and very slightly adherent. The uvula was free. An additional 6000 units were injected. At 10.30 P.M. on May 10th she gradually changed colour and complained of nausea. She retched but did not vomit. The pulse at the wrist became poor and almost uncountable, and she developed a faint serum rash without elevation of temperature or joint pains. Her colour was very poor and rather characteristic of early cardiac paralysis in a case of diphtheria. On examination of the heart the sounds were regular but diminished. She received brandy and cardiac stimulants hypodermically, to which she did not react for an hour or two. Serum rash, although scanty, lasted for 72 hours.

She had an uninterrupted recovery and was discharged from hospital within 11 weeks. Throughout her illness there was no albuminuria, and it would appear, in view of the facts that she received serum early, that her throat was mildly affected, that she had received 8000 units A.D.S. seven months previously for diphtheria, that the cause of sudden change was more likely to be associated with anaphylaxis than early diphtheritic cardiac paralysis. In type she was adipose and unhealthy, showed no evidence of asthma, and states that she has no recollection whatsoever either of her temporary embarrassment or of the treatment she received during this somewhat alarming experience.

In both these cases the clinical symptoms appeared so severe that I felt justified in notifying the respective relations. I may add that the serum employed in both these cases was standard A.D.S., manufactured by a firm of repute.

I am indebted to Dr. J. Wright Mason, medical officer of health, Hull, for his kind permission to publish these records.

A CASE OF POISONING BY "VAPO-CRESOLENE."

BY EDWARD G. GIBBS-SMITH, M.D. DURH., D.P.H.,
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THE following case of poisoning by the accidental drinking of "vapo-cresolene" may be of interest on account of its rarity, as I have been unable to find a similar case in medical records. Vapo-cresolene is a well-known American preparation which has a large sale in this country, and is commonly used as a remedy for whooping-cough. It is put up in a specially made square indented bottle so that it can be recognised in the dark. Directions are printed on the label telling what antidotes to take in case the preparation is taken internally by mistake.

Messrs. Allen and Hanburys are the British distributors, and they have kindly provided me with the following description of cresolene: "Vapo-cresolene consists practically entirely of a mixture of free creosols or cresylic acids. These, of course, are members of the phenol group, and vapo-cresolene may therefore be considered to consist practically entirely of phenols, although it contains only a very small amount, if any, of actual phenol (carbolic acid)."

The patient, a healthy woman, 28 years of age, drank from a bottle about two teaspoonfuls of vapo-cresolene in mistake for cough mixture. She immediately went for help, drank a tumbler of water, and within five minutes became unconscious. I saw her 15 to 20 minutes after she took the poison. Her face was pale and puffy; very slight cyanosis; lips burnt and swollen; slight discoloration on the chin; fauces were burnt on both sides, the burnt patches extending down as far as could be seen. The breathing was regular but somewhat hampered by a large amount of secretion; pulse 120–130, fairly good; skin rather cold but not moist; temperature subnormal (97° F.); pupils slightly contracted. The poison was taken at about 12.30 A.M. on Oct. 4th. At about 1 o'clock the following treatment was commenced: Alcohol by the mouth, strychnine 1/60 hypodermically, sulphate of soda, and olive oil. She remained unconscious, with periods of delirium, and treatment had to be adminis-

tered by force. At 4.30 A.M. her general condition became worse, the skin was cold and moist, and signs of collapse were apparent. 7–8 c.cm. of brandy were then injected between the scapulæ; within ten minutes of this she rapidly regained consciousness and was able to say exactly how the accident happened. At this stage she complained of burning and soreness of mouth and throat, giddiness, and general weakness. More olive oil and solution of sulphate of soda were given, and a little later she vomited a considerable amount of partly digested food, oil, &c., which smelt strongly of cresolene. A fair quantity of urine was also passed, almost black in colour. There was constant coughing, and after 24 hours sloughs began to come away in considerable quantity and continued to do so in diminishing amounts for three days, after which mucus only was expectorated. During this period the temperature rose to 100·6° on one occasion.

Further treatment consisted of spraying and gargling with dilute glycothymoline, and swallowing slowly dilute bovinine. The latter was given as an application to the damaged tissues as well as for nourishment. When the sloughs had finished coming away an examination with the laryngoscope showed no inflammation of the vocal cords, but the surrounding parts were somewhat congested, and small quantities of mucus were adherent in places.

The case presented no signs of œdema of the glottis or other serious complications. By the ninth day the patient had made a good recovery and was able to leave home.

I append the analyses of two samples of urine, kindly made for me by Messrs. Allen and Hanburys.

(1) Sample of urine passed at 5 A.M. Oct. 4th, 1924: Colour and appearance, bluish-violet containing some suspended matter. Reaction, alkaline; sp. gr., 1036; albumin, distinct trace; sugar, absent. The sample affords distinct evidence of the presence of a phenol, and the bluish-violet coloration appears to be due to the presence of indoxylsulphonic acid, due probably to the ingestion of a phenol. The presence of pyrocatechol and hydroquinone is also indicated. The deposit consists of some quantity of epithelial debris and numerous crystals of triple phosphate.

(2) Sample of urine passed about 6 P.M. Oct. 5th: Colour and appearance, greenish-brown, turbid; reaction, alkaline; sp. gr., 1039; albumin, distinct trace; sugar, absent. The sample yields no indication of the presence of a phenol and gave no reaction for indoxylsulphonic acid. The deposit consists of amorphous urates, numerous crystals of triple phosphate, and some epithelial cells.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

COMBINED SECTIONS OF OBSTETRICS AND GYNÆCOLOGY, EPIDEMIOLOGY AND STATE MEDICINE, AND THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.

NOTIFICATION OF PUERPERAL SEPSIS.

A SPECIAL combined meeting was held under the presidency of Dr. RUSSELL ANDREWS, on Nov. 6th, of two sections of the Royal Society of Medicine jointly with the Society of Medical Officers of Health. The meeting was called in the following circumstances.

Sir George Newman, in May, 1924, addressed a letter to the Section of Obstetrics and Gynæcology of the Royal Society of Medicine, stating that the Minister of Health, after consideration of a report on maternal mortality recently issued by the Ministry, was anxious to take such steps as possible to reduce the incidence of maternal mortality and particularly of puerperal sepsis, and he therefore asked for observations from the Section as to the administrative action which might suitably be taken in this matter "especially with regard to the terminology and definition of puerperal fever . . . . as may lead to the prompt notification of the occurrence of this morbid process as soon as symptoms suggestive of septic infection become manifest, that adequate nursing and treatment may be ensured. . . ."

The Council of the Obstetrical Section referred the matter to a subcommittee consisting of Dr. Russell Andrews, Sir Ewen Maclean, Mr. Aleck Bourne, and Dame Janet Campbell. This subcommittee's suggestions were brought before the Council of the Obstetrical Section on July 3rd, and the question of the actual wording was left in the hands of Dr. J. S. Fairbairn, Dr. H. Williamson, and Dr. Russell Andrews. They reported as follows to Sir George Newman:

"Any case in which there is a rigor or a temperature of 102° or higher for 24 hours, during the first ten days after a confinement or abortion, must be notified.

"Get rid of the official term 'puerperal fever' and use in its place the term 'puerperal sepsis.'

"Puerperal sepsis is a febrile condition of the nature of wound infection, arising after labour or abortion, due to bacterial invasion from, or absorption of, products of bacterial action from some portion of the genital tract,"

and asked him to make further suggestions on their report. Sir George Newman later pointed out how important the matter was, as it might influence future legislation, and, after discussion at a further Council meeting, it was thought better to submit the matter to a meeting of the whole Section, and at the same time obtain the views of the Section of Epidemiology and State Medicine and the Society of Medical Officers of Health.

Dr. J. S. FAIRBAIRN opened the discussion. He said: To compress what I have to say within the limits allowed, I will confine my remarks almost entirely to two points—(1) What should be notified and (2) the pros and cons of notification. There will probably be a divergence of opinion in this meeting regarding the definition of what should be notified equal to that among the members of the subcommittee—i.e., as many opinions as individuals present. Support will surely be found, however, for the general principle that notification is useless unless the early and suspicious cases are included as well as those of undoubted puerperal sepsis. The Scottish Departmental Committee considered the matter, but feared to make any definite recommendation. The one suggested by the subcommittee to include early and suspect cases is before you—"Rigor or temperature of 102° or over for 24 hours"; it was the shortest and most comprehensive that could be arrived at; if anyone here thinks he can devise a better, let him submit his effort to the meeting to see if it meets with a wider acceptance.

For my own part I have found it helpful, and perhaps others may find so too, to bear in mind the type of case that we would consider a danger to nurse in a ward with other lying-in patients and the usual hospital procedure in dealing with it. True, the risk of contagion to others is very much less when the patients are already isolated in their own homes, though there is even there the risk of conveyance of infection to others by doctors, midwives, and maternity nurses; moreover, notification concerns also patients delivered in nursing homes and maternity hospitals of all sorts and kinds. In domiciliary practice, nursing homes, and in many of the small maternity homes that have sprung up of late, there are not the facilities for the thorough investigation of suspect cases that a big hospital offers, so that the greater delay in reaching a definite diagnosis may be set off against the lesser risk of spread.

In other words, we shall not be far out if we take as our guide the conditions that might be regarded as necessitating isolation and special investigation if they occurred in a patient in a lying-in ward. Though many of the cases coming under the suggested definition will turn out to be infections of the urinary tract or other non-genital area, and in many of the remainder the fever will subside rapidly without further complication, I think most of my obstetric colleagues would agree that they would have all such cases forthwith moved into the observation ward; delay is not worth the risk involved.

In case this method of putting it may not appeal to all, I will set the argument out in another way. Notification only comes in when our first line of defence—prevention—has been breached; the next line to be held is that of catching the disease early and scotching it, and that is only possible if the suspicious cases are included. Treatment is likely to be most effective in the early stages, and if notification is to be preventive of further spread, a trifling and transient pyrexia, which may be the start of an outbreak of more serious infection, should not be excluded.

I take it that I am justified is assuming that I have now put the case for the notification of suspect cases so clearly that the meeting is with me and that the only problem left to it is merely that of framing a better definition than the one suggested.

Notification to Include Suspicious Cases.

I will therefore proceed to the next point, the discussion of what can be said for and against a notification of puerperal sepsis wide enough to include the suspicious cases as well as those definitely diagnosed as such. In a characteristic obiter dictum, Prof. E. W. Fothergill has remarked on the curious fascination notification possesses for some minds. The best way to escape being fascinated by it is to look on it as a means to an end—and that end, the reduction of septic death-rate in child-bed—and to consider how it may be made to lead up to that end. The administrative action that must follow the receipt of a notification falls into two categories, according as it concerns the individual case notified and as it concerns the public. In the first category come the measures for determining the nature of the infection, the nursing and treatment of the patient, and in the second those for tracing the cause of the infection, preventing its spread, and collating the results obtained.

When the patient can afford such special services as a second medical opinion (which should be one with obstetric experience), bacteriological investigation, and adequate nursing, the duty of the health officials will be to satisfy themselves that such facilities have been made use of, and to be informed of any other particulars they may require, such as the results of examination and treatment. If, on the other hand, from local conditions or the economic position of the patient, full investigation is not possible, then arrangements should be made to provide these services, and, so far as can be, the policy should be to encourage and develop such local provision as is already in existence, both in the case of those able to pay and those who are not. The creation of new officials, without regard to the interests of those already trying to provide such services, whether private practitioners or voluntary hospitals, will in the long run be detrimental to the best interests of the maternity service as a whole.

By this means the cases notified as suspect will be narrowed down to those of true genital infection calling for special management and precautions to prevent its being carried to others. The care of the individual patient must, however, be kept in the foreground, and the measures for the public health and for obtaining information regarding causation made as little obtrusive as possible. Thus special medical advice, nursing or removal to hospital, or other provision clearly to the benefit of the patient must be the chief consequence of notification. Though removal to hospital cannot be compelled, it must be urged whenever the chances of the patient will be increased thereby, and if proper provision for the removal and reception of the patient is made, its benefits will soon be generally recognised and little persuasion needed.

Provision for those patients requiring, but hitherto unable to obtain, special investigation and treatment and the measures taken to limit conveyance of infection will be acknowledged as all to the good. Also if notification can be made to lead to an increased knowledge of the disease, it will with equal certainty lead to its lessened incidence, and hence information collected in this way from areas in which success has or has not been attained, and of the factors underlying such success or failure, is bound to be of value. I would emphasise this side as possibly the one that is likely to be most fruitful in the prevention of puerperal sepsis.

The Limitations of Notification.

But doubt must arise in the minds of many whether the notification of all suspicious cases is a possibility, and, if even it were, whether it will make much impression on the incidence of the disease. In vast numbers of confinements temperatures are not taken and recorded properly, and whatever standard is adopted there are numbers of mild infections which will escape notification and yet may develop into serious infections or be a danger to others. Foul venereal warts, vulval ulceration or vaginal discharge may cause unexpectedly little disturbance to the affected patient during her lying-in, but be virulently infective to others, and, indeed, septic conditions of all kinds in man, woman, or child may be the starting-point of genital infections in child-bed, so why single out only the puerperal infections? In all infections it is the carriers, the ambulatory and unrecognised cases that are the greatest danger, and one has only to recall both the puerperal cases that would escape notice and the causes other than puerperal infections that may be the starting-point of an outbreak to realise the limitations of notification.

Casting the net widely will certainly make the life of the practitioner who does much midwifery so much more of a nightmare than it now is that only the most thick-skinned will survive and many will be driven to give up a side of their work that is already a heavy burden. Patients and their households are not altruistic enough to take into account the lessening of risk to others and the value of increased knowledge, if attained by worry and inconvenience to themselves, and sullen opposition and resentment at official inquisition may more than counter-balance any problematical gain. Resentment will be aggravated if such further administrative action is taken as that suggested both in the Ministry of Health report and in the Scottish Committee's report—viz., that all deaths in child-bed should be inquired into or that post-mortem examinations should be made in all cases; this has been urged in some of the public discussions arising out of the publication of these reports. One form of notification that has also been put forward is much more reasonable as affording useful information in tracing the cause of infection, with no fresh formality; it is that of the addition to the birth notification form of the name and qualifications of the persons actually present at, and responsible for, the delivery of the woman.

Help for the Practitioner: Voluntary Notification.

Before concluding I would like to ask the views of our public health colleagues on the following suggestion. The immediate notification of suspect cases is obviously out of the question; it would probably involve some amendment of the Notification Acts, and certainly some years must elapse before the machinery for carrying out the measures that should follow notification can be set up throughout the country. I would ask them if it is not possible to organise, in some areas at any rate, obstetric consultations, bacteriological examinations, domiciliary nursing, and, if possible, a certain amount of hospital accommodation, both for observation and for nursing and treatment. As soon as the most essential parts of the machinery can be put together, the practitioners in the area could be informed and asked to notify voluntarily all cases of fever in child-bed; the general adoption and success of this form of notification, especially for those patients in need of public assistance, would be proportionate to its efficiency and to the advantages it offered to patient and practitioner being readily recognised. In this way less time would be lost and much valuable experience gained, both by the practising and administrative sides of the profession. The report of the Scottish Departmental Committee makes this suggestion (par. 102) both in connexion with notification and the investigation of deaths within a month of the termination of pregnancy, and states that a form of voluntary coöperation has already been worked in Aberdeen and elsewhere.

The reports recently published and Circular 517 of the Ministry of Health show the necessity for action—a need long recognised by this Section as reference to its Proceedings will show—and both

the Ministry and the local authorities are being urged to take action. Let us hope it will not be precipitate action, but considered action taken, if possible, after the possibilities have been explored by local effort, in some such way as I have suggested.

Dr. R. DUDFIELD considered that the reason that notification was so unsatisfactory was because the condition of puerperal fever was so indefinite. He personally would like to see the term puerperal fever kept for purposes of notification, since it is the term in use in other countries and, moreover, the public know what it means. He would like to see the profession in a position to certify suspect cases. He agreed with Dr. Fairbairn that closer coöperation between public health departments and private practitioners would be desirable, and he did not think the scheme outlined by Dr. Fairbairn would be at all impracticable. Dr. Dudfield made two constructive suggestions: (1) That the law should be altered to allow a practitioner to notify his suspicion that his patient has puerperal fever, thus obviating any delay while waiting for a certain diagnosis; and (2) that some public body, such as the Ministry of Health or the Medical Research Council, should appoint a small committee of experts to collect and digest information relating to notified cases. Such a committee could formulate a questionnaire which could be circulated to medical officers of health and through them to practitioners. Practitioners should be offered an adequate fee for filling it up, and the expert committee would then be in a position to investigate the notes made by practitioners in a convenient and uniform order. All inquiries could be made in writing to the M.O.H., and from the data collected some lines of dealing with the disease might be worked out. The cost would, of course, be considerable, but it was highly probable that such a committee would not require to function for many years if the profession generally coöperated heartily. To show how unsatisfactory was notification under present conditions, Dr. Dudfield quoted an estimate by W. E. Fothergill of the proportion of cases escaping notification in 1920. Fothergill estimated that in that year there must have been 70,000 to 80,000 cases in England and Wales; the cases notified during the year numbered 2898, rather more than 4 per cent. of the lower estimate (70,000).

The Need for Better Supervision of the Midwife.

Dr. R. A. LYSTER said that investigations into the possible causes of maternal mortality always led to one result—namely, that the chief and almost sole cause was bad midwifery practice. Experience in the supervision of midwives for the past 20 years had convinced him that the level of midwifery practice could be substantially raised by efficient supervision and inspection. The Midwives Act was obviously intended to create a body of midwives practising under close supervision and inspection, but that intention had never been carried out. Midwives exercised considerable influence through their societies and they control to some extent the Central Midwives Board. By means of this influence they had successfully prevented the organisation of schemes whereby their work could be properly checked and supervised. The unfortunate result was that 20 years working of the Midwives Act had resulted in little or no improvements in mortality connected with midwifery or mortality among newly-born infants. As an illustration of the manner in which notifications could be made entirely ineffective he referred to the working of the Notification of Births Act, 1907. Although midwives had to notify the birth within 36 hours, yet no official visits were paid by health visitors to that house during the first ten days. It was the mortality among mother and infants during these ten days that had shown so small a diminution during the past 20 years, and Dr. Lyster had no doubt that merely by the introduction of regular visits by health visitors immediately after the notification of the birth has been received a very striking improvement would result. In practice, the payment of subsidies to midwives in sparsely populated districts was found to be unreasonably costly when the total cost was compared with the number of confinements attended. It was far cheaper and more satisfactory to provide maternity homes. Maternal mortality would, of course, be substantially and immediately reduced by the provision of maternity beds for complicated cases, and for those cases whose home conditions are unsuitable. To these he would add the cases occurring in sparsely populated districts. Notification, unless it could be accompanied by substantial schemes of practical utility, was worthless from a preventive point of view. In his own area the notified cases of puerperal fever fell short of the deaths from that disease. The practical way to bring the practitioner into prevention was to start by paying him a fair fee for a full report on these cases. The proposals now being made in the way of amendments of definition and regulations for notification were quite sound and would be useful, but only if we could arrange a definite scheme of dealing practically with these notifications. The obvious course was for the notification to be followed by an offer of assistance of various kinds. If the case could be nursed at home, then an offer of skilled nursing assistance should be the immediate result of the notification. If operative treatment was necessary, then an institution must be at once available for the case, or in cases that might be treated at home the services of a consultant should be forthcoming on the request of the practitioner concerned. Last, and not least, there was the question of the supply of nourishment to such cases, altogether apart from the general question of such provision to expectant and nursing mothers.

A Royal Commission?

Dr. T. W. EDEN observed that reference had been made by several speakers to the fact that notification as at present carried out was unsatisfactory; this was the salient fact to be considered. Why was it that the present system had so completely broken down? There were good reasons. The two questions which the practitioner asked himself were (1) Is it a case of puerperal fever? and (2) Need I notify it? The first question was one of honest doubt and the second was caused by a desire to call it by any other name if he possibly could, because it was fixed in the public mind that if the case was indeed infected he was to blame. Thus, the practitioner's attitude with regard to notification of this disease was quite different from his attitude with regard to notification of other diseases. Now it was obvious that without the willing coöperation of the practitioner any scheme would break down. It was, in Dr. Eden's opinion, a mistake to approach the subject from the aspect of notification. At the earliest stage the whole field of puerperal morbidity must be brought into view. Would it not be possible to organise a system of puerperal observation wards to which practitioners could be encouraged to send all cases which seemed to be going wrong? In that case the odium of notification would be taken off the doctor's shoulders. Liberal State assistance would, of course, be required. Dr. Herbert Williamson, who was unfortunately unable to be present that evening, had suggested that the subject was worthy of a Royal Commission, but even if this were not considered possible, some committee of investigation should be set up. Some form of national midwifery service was essential. It was difficult for the Ministry of Health to keep in touch with the practical needs, but if the subject could be approached as a whole by a committee composed of both medical and lay members, some broad scheme might be worked out to meet requirements.

Needs of the Practitioner.

Dr. C. E. S. FLEMMING pointed out that notification was only a part, and by no means the most important part, of the process of prevention. The replacement of the term puerperal fever by that of puerperal sepsis was a practical step from the practitioner's point of

view, since there were certain febrile conditions not due to sepsis—for example, influenza; the diagnosis and selection of cases for notification must be left to the practitioner. He would doubtless be grateful for a second opinion at an early stage; it might be difficult, however, to find a sufficient number of experts. The quarter in which notification had to be made was another point requiring consideration; in some cases a practitioner now had to notify to an M.O.H., who was his rival in practice. Dr. Flemming quoted a case where a patient of a certain practitioner went septic; he found, subsequently, that the district nurse who attended this patient was also nursing two infected puerperal cases, both being patients of the M.O.H. of the district. It should be the duty of M.O.H.'s to inform the midwife and the nurse in attendance when any case had been notified as septic. Notification had only a limited use in preventing infection. If mild cases of sepsis which were likely to recover were notified there would be a further advantage, in that the opprobrium attached to a case which did well was much less than that attached to a fatal case. Moreover, medical men doing antenatal work should have the power, or even the duty, of notifying those antenatal cases which were in unsuitable surroundings, and some provision should be made for the removal of these patients into proper conditions. Notification was useless if there was nowhere to send the patients; the isolation hospital was now the only place where they could be sent, but it was essential that someone should be there capable of looking after them.

Dr. W. BUTLER said that puerperal sepsis, its origin and prevention, its clinical and pathological identity fell within the sphere of action of preventive medicine as surely as did small-pox or scarlet fever. To attain this object, divergent interests must first, as far as possible, be reconciled. To this end he suggested a broader basis for notification and at the same time a definite specification of the clinical phenomena it is sought to embrace under the statutory obligation. The suggestion of the subcommittee of the Obstetrical Section was precise and met these requirements. But obviously, and even fortunately, there was embraced in this definition a variety of conditions which it would be incorrect and misleading to describe as puerperal sepsis. He suggested sustained puerperal pyrexia as a suitable condition for notification to the medical officer of health.

Dr. HAROLD SCURFIELD noted that all speakers agreed that notification had been a failure. There seemed to be an impression among practitioners that sepsis following a miscarriage need not be notified. He agreed on the importance of working out a scheme for dealing with cases before the details of notification were discussed. Tuberculosis was not notified so well as some people appeared to think; indeed, in all diseases notification appeared to vary with the efficiency of administrative measures for giving help to the practitioner. At Sheffield when he was M.O.H. there, the only resource for cases of puerperal fever was the Poor-law hospital. He agreed that any suggestions made should be coupled with a strong recommendation that a well-thought-out and comprehensive administrative scheme should be got out.

A Plea for the Midwife.

Dr. MARY KIDD put in a plea for the midwife, who was very badly paid and worked against heavy odds; could she perhaps be provided with an allowance for rubber gloves and perhaps also with a sterilised outfit by the local authority? Many mothers would much resent the intrusion of a health visitor on the second or third day after delivery, especially if her visit involved some asperities between her and the midwife. Inspection by health visitors would be rather hard on midwives since the former were often untrained. Women would be more willing to go to the Poor-law hospitals if only the relieving officer did not have to be interviewed; this formed a difficulty which surely might be swept away.

Sir EWEN MACLEAN said that the consultative council of the Welsh Board of Health had investigated the conditions of puerperal mortality in Wales, where there were 5·41 deaths per 1000 births against 4·11 per 1000 of the general population of this country. The facts which emerged from this investigation would be the subject of a report by the Ministry of Health. In Wales notification was very little practised. Directly, or by implication, blame had been laid on the practitioner and on the midwife for omission to notify, but the real reason why notification was not carried out was the complacency of the public. The patient often raised objections to notification, or at least was quite callous as to whether it was done or not. Notification, indeed, brought no help to her. If it became known that notification resulted in benefits, prejudice would soon be swept away.

Prof. LOUISE MCILROY suggested three reasons for the failure to notify: (1) It brought the practitioner into disgrace and therefore required courage; (2) it was difficult to notify puerperal fever, because it was difficult to recognise it; (3) no adequate treatment was given when notification had taken place. In fever hospitals the patient was often put under the care of a junior medical officer, and might indeed even be curetted on admission. A large hospital in the London area devoted exclusively to these cases and staffed by experts might help. The provision of post-graduate courses for practitioners was desirable.

Increased Incidence after the War.

Dr. T. H. C. STEVENSON said that from Dr. Lyster's remarks it would have seemed that 100 per cent. of the cases of puerperal fever occurred in patients under the care of midwives. It would surely be a matter of practical utility to ascertain the proportion of cases occurring in the practice of medical men. Immediately after the war, when presumably the cases attended by midwives alone must have diminished and those attended by practitioners increased, the change in condition was accompanied by a sudden and considerable rise in puerperal fever. Dr. Stevenson did not draw any conclusion from the circumstance, but wished to call the attention of the meeting thereto. The term puerperal fever had been replaced in the classification of the Registrar-General by that of puerperal sepsis, owing to the general feeling that this should be done. As to the number of different conditions tabulated under that heading, the number of conditions tabulated merely represented the different forms in which practitioners notified cases of this description.

Dr. E. W. GOODALL, replying to Prof. McIlroy, deprecated the suggestion that in fever hospitals cases of puerperal fever were put in charge of inexperienced officers; these cases were desperately bad, as a rule, when admitted, and had very little chance. Invariably it was the most experienced officer available who had charge of them, and expert opinion could be obtained when required. Since very few cases were admitted, however, it might be an advantage if they were concentrated in one hospital.

Dr. J. ROBERTSON said that in his area (Birmingham) there was a ward sanctioned by the Ministry of Health for cases of puerperal fever, so there was room for any case that might occur. The results were not so good as might have been anticipated, since cases were sent up so late that it was impossible for the best specialist to help them. The whole question of obstetrics needed reviewing; it must be remembered that the chief duty was to prevent and not to treat these cases.

Dr. REMINGTON HOBBS urged his conviction that every case of puerperal fever was a surgical case and susceptible to surgical treatment.

The PRESIDENT considered that the discussion had been very useful. It now remained for the subcommittee to meet and to consider the reply to be sent to the Ministry of Health. It could be anticipated that there would be a demand for a comprehensive inquiry.

MEDICAL SOCIETY OF LONDON.

ENCEPHALITIS LETHARGICA.

AT a meeting of this Society held on Nov. 10th, Dr. E. M. CALLENDER, the President, being in the chair, a discussion was held on Encephalitis Lethargica.

Dr. E. FARQUHAR BUZZARD, in introducing the subject, reminded Fellows that six years ago, when he read a paper before the society on the disease, he referred to it as a stray visitor, whose stay might be expected to be of but short duration. But, on the contrary, it had not only outstayed its welcome, but its incidence had so increased as to constitute a menace to the health of the community. It was humiliating to professional pride to have to confess that there was not yet available the knowledge necessary to enable its progress to be checked, though admittedly its microbic origin had been fairly determined and its morbid anatomy and clinical features studied; but we have yet to learn its path of approach and its methods of dissemination. In this contribution Dr. Buzzard specially directed attention to one or two questions which were difficult to answer and which had important bearings. There were no real characteristic symptoms or physical signs by which the disease could be recognised, and as any function of the brain might be disturbed, there might be a whole series of clinical manifestations.

Importance of History of Onset.—The diagnosis depended on a careful consideration of the history of onset and the course of events, as well as on the exclusion of other morbid processes capable of producing like disturbances. No serum or chemical test was available, and no cytological picture was pathognomonic.

Importance of the Ambulatory Form.—The acute disease did not present nearly so serious a problem as the ambulatory form, the importance of which was becoming more and more evident. He knew many examples in which serious disturbances of the nervous system had followed what seemed to be a minor illness—probably diagnosed first as influenza, or even catarrh—and he narrated two or three examples in which there seemed to have been present at the early stages nothing to enable a serious condition to be recognised. The most common early indication that a case might turn out to be ambulatory encephalitis was a transient diplopia, lasting a few days, possibly only a few hours. Another of these indications was the occurrence of acute pain in a limb or in the face or neck, regarded at the time as neuralgia. The period of diplopia might be synchronous with a definite change in temperament, in the direction of a morose restlessness. There was often a real difficulty in differentiating this disease from disseminated sclerosis.

Prognosis.

There were a number of points in connexion with late developments which had a direct bearing on prognosis. In the first week or two of the disease he would be a bold man who forecasted the behaviour of a case. The possibilities for the patient could be summarised in the following way: (1) Recovery might occur within a reasonable time and no ill-effects remain; (2) death might occur in the acute stage; (3) continuance of life might be at the cost of permanent disablement; (4) recovery might apparently ensue, but might be followed in weeks or months by relapse; (5) there might be more or less complete recovery, and then, after a variable interval, a slowly progressive sequel might develop.

In the attempt to forecast the issue certain points might be helpful. For example, the more acute the onset and the more fulminant the symptoms, especially if associated with a high temperature, the more was a speedy death likely. But, conversely, it could not be said that milder initial stages rendered less liable progressive disablement, or even an eventual fatality. Still, many cases which were of mild onset made a good recovery.

One of the interesting questions was as to whether late developments could be regarded as true relapses of a process which for a time had ceased to be active, or were cases of fresh infection. He had seen cases in which both seemed to be true, and he did not feel able to give any guidance on this aspect of the subject. Some of these cases he narrated. He also discussed the prospects of a patient who, after all other symptoms of the disease had disappeared, still had myoclonic contractions. A medical man who had an acute attack in 1916 still had myoclonic contractions in his trunk muscles in 1920, though three years later they had practically ceased, only reappearing when he was very fatigued. The speaker did not hesitate to recommend him as a first-class "life," as he was convinced that the continuance of these contractions alone did not justify a serious outlook.

Fresh Light on Cerebral Localisation.

Dr. Buzzard thought the sequelæ of the disease merited a close study because of the light they might shed on the localisation of cerebral function. One patient who had the post-encephalitic Parkinsonian syndrome said that in addition to the drowsiness and slowness of action she had fits of uncontrollable yawning, and attacks of what she described as shortness of breath, which inquiry showed were periods when she had to breathe consciously, and the same concentration was required even to sip her tea; this became a noisy process. She also had difficulty in producing ocular convergence, and while she was not relaxing her musculature by an effort, rigidity, or muscle tension, supervened. In other words, the higher centres were often invoked to carry out movements which in health were automatic. The Parkinsonian syndrome was usually associated by workers with lesions of the basal ganglia, and the progressive sequelæ of the disease supported this idea. He had seen a number of cases of progressive hemiplegia, starting in one limb and later becoming double. It was mainly a motor disability, but slight sensory disturbances of cortical origin accompanied it. These patients had no arterial degeneration. In one or two, on his advice, an exploratory operation on the brain had been done, but no gross changes were found, and he thought these symptoms might be a hitherto unrecognised legacy of the disease under discussion.

Dr. Buzzard, in conclusion, said that the practical lesson to be derived from the experience of the last few years was that no minor ailment which gave even slight evidence of organic nervous lesions should be treated with anything but the greatest consideration. Inactivity was essential when dealing with inflammation in any part of the body, and the organ which contained the most highly specialised and delicate tissues in the body was no exception to this rule.

Discussion.

Prof. A. J. HALL (Sheffield) dealt with the subject as he had encountered it in Sheffield, and illustrated his remarks by means of a number of slides giving statistics and tracings of temperature and of attacks of polypnœa. In the city in question there were notified this year to October 320 cases, and the surrounding neighbourhood brought the number to about 500. He gave a history of the epidemic in the Sheffield area and stated that the mortality had been surprisingly low, about 10 per cent., in contrast to the 20 per cent. in the country generally. The outbreak was notable for the many variations in type. Six cases in one week were sent into surgical wards as abdominal emergencies; some cases of the disease were diagnosed as pleurisy, others as renal calculus. Hiccough was a very common and distressing accompaniment. The occurrence of abdominal myoclonus led to many mistakes in diagnosis. When polypnœa occurred it constituted a valuable early sign of the disease, and the tracings of respiration during these attacks evidenced the severity of the seizures. He had practically never seen this polypnœa in girls, all the cases were in boys. The attack of this was preceded by a state of anxiety, with deep flushing of the skin

of the whole body. A peculiar feature in many of the victims of the disease was a sort of writing mania; a number of the patients spent a great deal of time in scribbling all sorts of things on scraps of paper.

Prof. J. MCINTOSH referred to the investigation which was undertaken on behalf of the Local Government Board when the disease made its first appearance in England in 1918, and a number of people regarded it as a form of cerebral poliomyelitis, others as an aberrant influenza, but without bringing evidence in support of their contentions. In 1919 a monkey was successfully inoculated with the disease, developing tremor and definite paralysis, and the basal ganglia showed lesions identical with those of human encephalitis lethargica. Many rabbits had since been successfully inoculated with the virus from acute cases, and this animal was much more susceptible to it than the monkey. It was shown that the filtrates from emulsions from infected brains could pass the Berkefeld filter, and the virus could be passed in series from one animal to another. He had himself done four positive inoculations from fatal human cases. He dealt at some length with the criticisms which had recently been brought forward against these experimental findings. He pointed out the difference from spontaneous encephalitis of rabbits, which was always a chronic disease with wasting. The exact relationship of the virus of encephalitis lethargica to that of febrile herpes was much more difficult to evaluate, but he could not bring himself to the view of Levaditi and Harvier, that they were identical. These points could only be settled by a continuance of experimental work.

Dr. A. SALUSBURY MACNALTY spoke on the epidemiological side of the question and gave the following table of cases which had been notified in England and Wales from 1919 to the present time:—

Year.	Cases.	Death.
1919	541	264
1920	890	471
1921	1470	724
1922	454	337
1923	1025	530
1924 (to Oct. 25th) ..	4605	Not yet compiled.

This year's outbreak started in January last and was first localised in Lancashire, originally in outlying districts, then in denser populated districts. There had been a number of instances of several members of a household being attacked, and similar occurrences had been reported in France. From a study of the epidemiology of the disease, the conclusion that encephalitis lethargica was an infective disease liable to manifestation in epidemic form seemed to be justified, and was gaining universal acceptance.

The PRESIDENT recalled some cases in his own practice which were diagnosed and treated in various ways and which, on further knowledge, seemed to have been instances of this disease. One in particular was regarded as tuberculous meningitis. One patient still had diplopia and was probably an ambulatory case of encephalitis.

Dr. A. W. M. ELLIS spoke of a number of specimens of urine he had examined from cases; in these there was an absence of phosphoric acid, and the ammonia was far in excess of the normal. These urines also contained a great deal of albumose, pointing to considerable liver involvement.

Dr. C. P. SYMONDS spoke of cases of encephalitis lethargica who had the Argyll Robertson pupil. With regard to the restlessness and insomnia of these cases, he questioned the wisdom of seeking, by the aid of hypnotics, to reconstruct the normal rhythm. If new symptoms were not manifested, his experience had been that the patient tended to re-establish the normal rhythm naturally.

Sir WILLIAM WILLCOX said that nearly every case of the disease he had seen had a rapid pulse, but one definite case, in a boy, had a pulse of only 50. He asked as to the value in diagnosis of the paralysis of accommodation when it occurred; also whether Dr. Buzzard found that the prognosis in the condition was worse for patients over 55 than in younger persons.

Reply.

Dr. BUZZARD, in the course of his reply, spoke appreciatively of the work which Prof. Hall had done in connexion with this disease. He was much interested in his remarks about hiccough. In one school where there was a mild epidemic of encephalitis, the school medical officer told him that four of the masters had such violent and continuous hiccough that they were unable to control their forms, and had to be absent from school until the symptom passed off. He agreed with Prof. Hall that many of the cases seen were of a desperate nature, when there was a rapid termination in death of the Parkinsonian syndrome. Still, in the first case in which he, the speaker, saw the Parkinsonian syndrome, in April, 1918, the patient, a man aged 50, was bedridden with what looked like paralysis agitans, but this year he found the man was back at his work on a railway. He had seen cases with both a quick pulse and a slow one, and he was not prepared with an explanation of the difference. He thought those with a slow pulse had reached a considerable degree of lethargy; indeed, some were almost stuporose, as if they had increased intracranial pressure, and probably the pulse partook of the general sluggishness. He agreed that the prognosis in older patients—about 60 to 65—was usually worse than in young adult life. In one household every member and the servants were stricken with the disease, most of them mild cases, and it was regarded as some gastro-intestinal infection, with neuritis. The mistress had the fulminant type and was dead in ten days. The intestinal tract might be one method of approach of the virus to the central nervous system. In answer to Dr. Symonds, he did not think one could make much difference to the rhythm of patients troubled with insomnia and restlessness. The hiccough, he had found, was best relieved by chloretone. With the careful study of the symptoms and histories, and comparisons of results, there would develop a greater confidence in diagnosing this disease than many felt at present; but it was a condition which well merited every form of investigation which could be brought to bear upon it.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting of this Institution on Nov. 6th a discussion took place on the

Treatment of Pleural Empyema.

Mr. THELWALL THOMAS alluded to a discussion held in 1893, when he brought upon himself serious criticisms for daring to advocate excision of a portion of rib to facilitate free drainage. He discussed empyema with and without pneumonia, and emphasised the necessity in severe cases of empyema, complicated with pneumonia, of repeated aspiration to relieve serious symptoms of toxæmia and asphyxia before resorting to incision—a mode of treatment confirmed during the severe war epidemic. He strongly advised local anæsthesia both as a preliminary to exploratory puncture and as the only method of anæsthesia for the subsequent operation. The site of election was below the angle of the scapula, a portion of the eighth or ninth rib being excised and the pleural opening being made sufficiently large to admit two fingers and facilitate removal of masses of fibrin. Since the routine performance of this operation chronic empyema had been much less frequent. He mentioned the value of X ray examination in doubtful cases. Tubes for drainage should be half an inch in diameter at least; he deprecated the use of safety-pins as "land anchors" for the tube, suggesting instead a strong hair-pin pushed through the tube and the limbs bent at right angles. Chronic cases necessitating Dakinisation or plastic operations had become rare owing to efficient drainage. Antiseptic dressing should be used. Exercises to extend the lungs and good feeding were essential. The operation of incision, drainage, and immediate closure he considered severe and uncertain as to result.

Mr. JOHN T. MORRISON said that out of the large number of interesting questions raised he would confine

himself to one, the prevention of the development of chronic empyema. This might be looked at from two points of view, the early expansion of the lung, and the prevention of infection. The first should be encouraged from the start. The ideal method, primary closure of the wound, being still too risky for general use, valvular drainage should be employed. Personally, he favoured connecting up a short wide drain with a tube hanging over the bed, its end under the surface of fluid in a bottle on the floor. The tissues must, of course, fit snugly round the drain. This made an air-tight and water-tight joint so that there was no necessity to touch the dressing for five to eight days. The prevention of mixed infection was impossible if the wound remained open. If possible the drainage-tube should be removed at the first dressing; it might be as early as the third day to the fifth if the lung had expanded and adhered to the parietes round the drain as it often did. The early removal of the drainage-tube appeared to him the safe and reasonable compromise between immediate suture and prolonged drainage of the chest.

Sir JAMES BARR said that he had incidentally dealt with the treatment of empyema in his Bradshaw lecture, and in a lecture on the physics of the chest; he should now content himself chiefly with the physics of the problem. When the evacuation of the pus was necessary by an operation, the object should be to prevent, as far as possible, the collapse of the lung. The incision should be made posteriorily as low as thought desirable in a line with the lower angle of the scapula. The patient should lean towards the affected side and an assistant should compress that side of the chest. A short tube should be kept in for a few days to prevent the wound closing, and the wound should be covered with a piece of sterilised oiled-silk, so as to act as a valve to prevent air entering, but allow the pus to escape. The patient should frequently blow into a Woolf's bottle or piece of rubber tubing to keep the lung expanded. When there was a rise of temperature, the surgeon frequently concluded that it was due to lack of free drainage and retention of pus, and proceeded to enlarge his wound and work further mischief, whereas the rise of temperature was practically always due to secondary infection of the wound. When the wound was dry and glazed, constant irrigation should be at once adopted either with Dakin's tubes or by immersion in a warm saline bath. The water in the bath should contain 0·9 per cent. of sodium chloride. The attention to minute details was necessary for success.

Mr. K. W. MONSARRAT considered that the appropriate treatment of empyema was dictated by the type of infection in each case. In streptococcal cases an early thoracotomy was often inadvisable. In tuberculous cases the results of open operation were usually disappointing; sinuses in these cases tended to persist indefinitely. In pneumococcal cases he held that there was no rival to adequate drainage, every possible measure being taken to dispense with tube drainage at the earliest moment. He did not use any special measures; he considered that the essentials of technique were: an opening wide enough for the evacuation of coagulum masses, and a tube large in diameter and short in length. Examination of the discharge was the best guide in choosing the time for dispensing with the tube.

Dr. HUBERT ARMSTRONG recalled the danger of acute œdema of the lung and syncope in exploratory puncture, but denied that it could be averted by previous local anæsthesia. There was no such danger in the exploration of an empyema, but only when the needle entered the lung in chronic pneumonia. He considered it advisable to aspirate in cases where the fluid was only turbid, and to postpone open operation till it had become frankly purulent. The extremely low operation was not without danger of injury to the diaphragm and consequent infection of the peritoneum.

Dr. J. C. MATTHEWS referred to those cases (usually following pneumonia) where aspiration produced a thin, turbid fluid with a high bacterial content. It was well recognised that these cases, if submitted to immediate operation, became very ill; he suggested that this was due, not so much to the infective nature of the fluid, but to the fact that, in the absence of adhesions between the lung and chest wall, operation induced a complete pneumothorax with its consequent collapse of the lung and displacement of the mediastinal contents to the opposite side.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

AN ordinary meeting of this Society was held on Nov. 6th, Dr. E. F. MAYNARD, the President, occupying the chair. Dr. W. BARRINGTON PROWSE read a paper entitled

Deep X Ray Therapy.

He said in the past there had been much uncertainty and want of method in the application of X rays for therapeutic purposes, the result being disappointments and doubts as to the value of the treatment in many directions. It was not claimed that X rays were a complete cure for malignant disease, but they offered a prospect of cure in some cases. The main purpose of his paper was the subject of X rays in relation to malignant diseases, and in particular he wished to speak of the more scientific and accurate applications of X rays for therapeutic purposes, especially as employed at Erlangen. The work of Profs. L. Seitz and H. Wintz at that University had raised deep therapy to the rank of a scientific and accurate procedure, leading to greatly improved results. Even by the older methods relief of pain, healing of ulcerated surfaces, disappearance of a growth, at any rate for a time, had been effected, but measurements and dosage were variable. Now the dose could be measured fairly accurately both on the surface of the body and at given depths, and the reactions of normal and diseased tissues to different quantities of rays, which had been established, gave us some basis for the dosage. Apparatus also had been devised enabling the use of the necessary heavy and accurate dosage of rays of sufficient penetrating power and homogeneity. X rays had a profoundly destructive action on all tissues when administered in sufficient quantity. Smaller doses appeared to stimulate, though this had been disputed. While the action of X rays on all living tissues was similar it varied in degree, according to the tissue. Young and rapidly growing cells, such as those of embryonic type, were more susceptible than older cells of fixed type. The cells of new growth, being largely of this embryonic type, were all (though in varying degree) more susceptible than most of the body cells of fixed type. Seitz and Wintz at Erlangen had measured quantities of X rays which produced biological changes in tissues normal or diseased, while Kronig and Friedrich, of Freiburg, working on a different system had arrived at similar results, giving the same relative sensitiveness of individual tissues. These give a basis for estimating the necessary dosage in deep X ray therapy. Dr. Prowse defined the latter as the administration of an accurately measured quantity of rays, for curative purposes, to the whole of a diseased area within the body, such quantity being the minimum which would cause the destruction of the vitality of the diseased tissue to which it was applied. In the accurate measurement lay the difference between this and the older methods. Depth was variable—the tissue treated might lie in the centre of the body or at the surface—and he did not like the word "intensive," ignoring measurement and conveying the impression of extreme intensity, though this was no greater than in the older methods. The treatment was intensive in the sense that it aimed at giving the full necessary dosage within a short time instead of in divided doses over a long period. There was a division of opinion on the relative merits of the above methods, but he thought the immediate application of the total dose to be the method of choice when dealing with an *existing* malignant growth, except where

there were positive contra-indications, though there were, of course, cases in which it was not advisable. Ten years ago it had been noticed that malignant growths exposed to X rays gradually suffered diminution of their sensitiveness to the rays, and Sidney Russ had recently further established by experiments on rat sarcoma that this acquired resistance was handed down through many generations of cells, descended from those originally irradiated. This was a strong argument in favour of the immediate application of the total dose. The single dose was more accurate, smaller in quantity in the end, and effected a saving in time, which was important in dealing with cancer. Those who advocated divided dosage laid stress on the fact that recovery from these doses was more rapid in the normal tissues than in the tumour and on the absence of X ray sickness; they pointed out the great general disturbance of the body frequently seen after the single dose, the changes in the blood, and the possible injury in the healthy organs. These latter dangers might also be present in the divided dose. Dr. Knox had suggested that the *control* of cancer and other diseases by radiations in divided doses should be aimed at, but was this possible? Many cases of cancer had been checked in their progress by X ray treatment carried on at intervals, but in the end had succumbed, and after a time X rays had appeared to lose their power. Dr. Prowse did not suggest that the single lethal dose was applicable to every case. Each case must be considered on its merits, and the arguments against the single massive dose had more weight in cases other than those of *existing* malignant disease. The prime object of the Erlangen treatment of cancer cases was the destruction of the vitality of the cancer cells. There followed breaking down of the cancers, elimination of the products of disintegration, and building up of healthy tissue. Wintz attributed the first of these entirely to the "destructive momentum"—namely, the X rays; elimination depended on the general biological condition of the whole body.

In dealing with a case sent for X ray treatment, the first thing was verification of the diagnosis, but there was objection to test-excision or curetting if avoidable. Then the general condition of the patient must be considered. The size of the tumour was important: first, on account of the possible difficulty of producing a lethal effect upon all parts of it; and secondly, on account of the general reaction which might result from the destruction of a large growth in situ and the question whether the body was equal to the strain of elimination and recuperation. Further inquiries should cover metastases, blood, excretory functions, previous illnesses, skin—especially as regards former irradiations or applications capable of producing irritation or secondary radiation. Possible adhesions fixing coils of intestine within the area of irradiation were very important, also inflammatory states of the intestine or bladder. Close collaboration was necessary between medical attendant, radiologist, and surgeon. Preparation of the patient for irradiation should include rest, effective emptying of the bowels, regulation of diet. Some abdominal and pelvic cases were irradiated fasting. Sometimes an injection of heroin or morphia and scopolamine was necessary.

With regard to general considerations of irradiation, the object was to apply to the whole of the diseased area a dose of X rays suitable for the destruction of the vitality of the malignant cells, without serious injury to the skin and normal tissues. This was generally more easily done in the case of centrally situated tumours than in the case of those on the surface. When the tumour was on the surface it became in some ways more difficult to get sufficient dosage without injury to the skin. The total time required for the irradiation might be several hours, and it was often necessary to take the dose in instalments (bearing in mind that the dose was to be completed within about two days) and all possible provision must be made for the patient's comfort and for the protection of those parts not at the moment within the field of irradiation. After-treatment was as important as irradiation, since after the destruction of the vitality of the malignant growth, reparation of injured healthy tissue, elimination of products of disintegration, the sustaining of the body against malignant disease, and the restoration of healthy tissue had all to be undertaken. These depended mainly on the condition of the body, but rest, fresh air, attention to excretion, and suitable diet were all of assistance. Wherever local irradiation has caused local lowering of vitality, the tissue or organ affected must have rest as far as possible, and must be protected from all sources of irritation.

Among general injuries, X ray sickness might appear in greater or less intensity and was generally lessened by regulation of the bowels before irradiation and administration of a hypnotic. Injury to the blood depended directly upon the quantity of rays absorbed and generally righted itself in about six weeks, but should be helped by medicinal treatment and fresh air and sunlight, &c. For elimination of the products of disintegration and restoration of healthy tissue we had to depend upon the resistance of the body, only removing as far as possible all sources of irritation, and upon general care and treatment. X ray therapy for carcinoma might seem a formidable proceeding, but carcinoma was a formidable disease and seemed to justify risks.

Discussion.

The PRESIDENT said he had read Erlangen reports and was sorry to find the results claimed had not been substantiated.

Dr. HENRY T. CUBBON asked if enlarged thyroid had been treated by intensive methods.

Dr. C. GUY WHORLOW disliked the term deep X ray therapy, but approved of the definition given by Dr. Prowse. There was difficulty in getting together the physicist, instrument-maker, and radiologist. He considered that small doses of X rays stimulated cells, and one must avoid stimulating new growths. He did not agree with an invariable carcinoma dose. Cells varied in radio-susceptibility and cells varied during the period of their life-cycles, the most susceptible stage being during reproduction. A large number of young subjects could be given single intensive doses, but in old people with toxic symptoms the dose should be spread over one week, giving the body time to deal with toxins thrown into system and avoid sickness. Dr. Whorlow also discussed the action of minute doses spread over a long period and large area with a view to producing immunity to disease. In non-operative cases X rays should be used in all cases for the relief of pain and for improving the general condition of the growth. Radiation in carcinoma mammæ should be given tangentially to prevent any lung complication.

Dr. THOMAS S. ALLEN asked the result of operable cases treated by X rays.

Mr. FITZMAURICE KELLY considered that the procedure should be preliminary radiation of the whole area before operation and small doses after.

Exhibition of Cases.

At the commencement of the meeting Dr. W. B. PROWSE showed two cases treated by X rays:—

CASE 1: *Sarcoma of the Back.*—The patient was a man aged 60. A prominent sore spot was noticed in January, 1924, by patient. In April a growth the size of an egg was noticed to the left of the spine, also nodules in surrounding skin, growing rapidly and inoperable. Treatment was given on April 28th. Within a week there was appreciable reduction of the tumour and smaller nodules, and at the end of three weeks the growths had practically gone. Second treatment was given on June 21st. Present condition: No sign of growth; supple skin everywhere. General health good and no sign of metastases.

CASE 2: *Carcinoma of the Breast.*—The patient was a woman, aged 74, with extensive and inoperable carcinoma of four years' standing. She had a large mass in the outer part of the left breast involving a considerable area of skin and on the point of breaking through in two places. The patient's general condition was good. First treatment on April 14th this year produced some reduction in the mass. Second treatment given June 6th. At end of July nothing was left of the tumour but a puckered scar with a little thickening

underneath. A third treatment was given on July 23rd and a fourth on Oct. 3rd. Present condition: A puckered scar, and a little fibrous thickening under it. No sign of metastases and general health good.

The dosage was arranged so as to get, if possible, a lethal effect from a single application. There were no harmful results.

Dr. A. W. WILLIAMS also showed two cases: (1) A severe case of lupus vulgaris of nose and upper lip cured by carbon arc-light baths; (2) lupus vulgaris of nose, cheek, lip, buccal mucosa, and larynx, treated by sunlight baths and eosin and sunlight to skin lesions.

Dr. H. M. GALT showed microscopical slides of: *Sp. pallida* in liver, human lung (doubly injected), normal ovary from a child of 2 months, and the solid part of a dermoid cyst of the ovary.

LUNACY LAW AND ADMINISTRATION.

FURTHER SITTINGS OF THE ROYAL COMMISSION.

(*Continued from p. 913.*)

THE sittings of the Royal Commission on Lunacy and Mental Disorder were resumed on Tuesday, Nov. 4th, under the presidency of Mr. H. P. Macmillan, K.C.

EVIDENCE OF MEDICAL SUPERINTENDENTS OF POOR-LAW INFIRMARIES.

Dr. A. L. Bayly, medical superintendent of Lambeth Infirmary, said the accommodation for mental cases in this institution consisted of four wards with 50 beds for women and one ward with 11 beds for men; the latter would probably be increased in the near future. Every degree of mental disability was manifested by the patients there. A magistrate attended on two days each week for the purpose of certification. During the year which ended last March 615 persons were brought before this magistrate, and of that number 453 were admitted on the request of either the relieving officer or the police (under Section 20 of the Act, which provided for three days' detention). Other cases were transferred to the mental department from the general wards of his own or some other institution. Of the 453 cases on three days' detention, 193 were subsequently transferred to mental hospitals, in 111 others the orders were allowed to lapse, and the remaining 149 were eventually either discharged or transferred to the general wards. A large number of these cases, he said, were not technically lunatics, but it was advantageous to the patients that they should be for some time under control. The cases which were transferred to mental hospitals were those amenable to treatment, for which there was no provision in the Poor-law infirmary. Cases retained in the infirmary were chronic, most of them senile. His frequent difficulty was, not in deciding whether or not a particular person was of unsound mind, but whether he should be transferred to a mental hospital. A good deal depended, in finding an answer to this question, on the kind of home conditions the patient had. Much of this difficulty would be removed if there were a scheme whereby people of obvious unsoundness of mind could be placed on trial for a period without certification, especially as many of the cases of mental unsoundness which found their way into the Poor-law infirmary were clearly of temporary nature. In quite an appreciable number of cases domestic trouble seemed to have been the determining factor; in fact, he had had cases in which husband and wife alternately sent each other to the receiving establishment. The mental unbalancing in these cases usually disappeared shortly after the calming influence of the infirmary operated. Cases which observation showed were not certifiable were mentioned to the magistrate on the latter's visit, and received their immediate discharge unless physical ailment was present, and then, in that case, the patient was sent to a general ward. In certain cases it was not clear that discharge should be granted, and it seemed desirable that further observation should be carried out. These the speaker certified but suspended the operation of the certificate. If during that period recovery took place no one was aware that certification had been effected.

In reply to questions as to his position should an aggrieved patient take action on an allegation that he had been certified, Dr. Bayly said he had received assurances of protection from a Commissioner of the Board of Control, but fear of legal troubles in connexion with this work was now very acute among private medical practitioners, and it caused them to evince a disinclination to participate in the administration of lunacy. Every effort was made by the relieving officer, and, if necessary, by the police, to trace relatives of patients, not only to settle the question of chargeability, but to assist in compiling a reliable history of the patient and to give their wishes in regard to him. Only a small percentage of patients suffering mental accompaniments of fevers were eventually certified, and where insanity was clearly a part of physical disease he always did his utmost to retain the patient in his own institution in preference to sending him to a mental institution. He objected to a hard-and-fast segregation of mental cases. There were advantages in treating mental cases in a general institution, not only because it avoided the "stigma" of insanity, but because it meant the patients then had the advantage of supervision and treatment by a general medical staff. It would suffice if attached to the ordinary staff there were a special mental consultant.

The Chairman emphasised the fact that mental disease disturbed the responsibility of the citizen, and said that while the stay of a patient in a general hospital was necessarily short, mental disease ran a long course, and in many cases was permanent. There was the further point that it was undesirable for mental patients to associate with rational persons.

To this Dr. Bayly said a large number of mental cases were amenable to treatment in a general ward, while for others he agreed a separate ward was needed. For incurable cases it was better to have either a separate block or an entirely distinct institution. If power were to be given to Poor-law institutions to retain apparently curable patients for a longer period than they could at present be kept, it would be necessary that the staff should include experts in the treatment of mental disorder.

The next witness was Dr. J. Dudgeon Giles, who is medical superintendent of Salford Union Infirmary. He said that of 900 patients in his infirmary there were, on the average, about 150 mental cases, and about 80 per cent. of the latter were brought by either the relieving officer or the police, and were kept there on a three days' detention order. A very small number were discharged within that period, and the majority of the total were placed on a 14-day order for purposes of observation. At the end of the 14 days a certain number were found to be certifiable, and accordingly were transferred to a mental hospital. Chronic cases were placed under a permanent detention order. He expressed his strong view that there should be a period of observation and provisional treatment, with some sort of control, before certification was resorted to; but with that should go the power of saying to the relatives that during such period the patient must not be removed from the institution. Such a provision in regard to observation would, he considered, result in more volunteering for treatment and at an earlier stage of their mental malady than was the experience now. He agreed that the present system, as intelligently and sympathetically interpreted by medical officers, had not worked badly, but he thought some simplification was eminently desirable.

EVIDENCE OF OTHER POOR-LAW OFFICERS.

The Commission resumed its sittings on Wednesday, Nov. 5th, when the first witnesses were Mr. Howard Senior, President of the National Association of Masters and Matrons of Poor-law Institutions, and Mr. Usher, its hon. secretary, whose evidence reflected the expressed opinions of 1000 institution officers. They both stated that they considered there should be a longer period of observation in regard to persons regarded as of unsound mind who had been admitted to workhouses, where at present the period of detention was 14 days. Quite 50 per cent. of the people who came in under temporary orders were cured, so that certification became unnecessary in that number. In small institutions the officer of the infirmary had to do the best he could under the circumstances, and if the police brought in an acute case—without an order—the absence of properly trained people rendered the position a very difficult one. They did not consider that any country house was suitable for the reception of cases under Sections 20 and 21; their suggestion was that one institution in each area should be set apart for the reception of cases of the kind and staffed accordingly. Chronic cases, such as those of senile dementia, were living with the rest of the workhouse inmates in a number of country places, and apparently without detriment. Sometimes such patients, who had shown no harmful tendencies, were allowed out for short periods, the master of the workhouse taking the risk. Asked if their views would be met by having a special department of the mental hospital where patients could be observed and afterwards duly relegated they replied in the negative, mainly because of the stigma still held to follow such association. In reply to a question by Lord Eustace Percy, Mr. Usher said he did not see why arrangements should not be made with the Poor-law authorities to set apart one of their institutions in each district for the reception of the kind of cases under discussion. His Association advocated the lengthening of the period of preliminary detention, and eight days should be allowed for arriving at a determination of the nature of a case, and so that these days should not be wasted from the point of view of treatment, there should be at these places facilities for treatment as well as observation.

Mr. Senior said his Association considered that the three-day order should be followed by a magistrate's 14-day order, and that in every case the magistrate should visit the institution and see the patient. He personally believed the period should be made 28 days, and at the end of that time an order for discharge or for detention in an institution should follow. It was very seldom, in his experience, that a justice suspended the execution of an order for not longer than 14 days, as allowed. Answering Sir Humphry Rolleston, he said the patient should be dischargeable at any period within the suggested 28 days, but he would not object to two 14-day periods instead of one of 28 days. If recovery occurred during the currency period, presentation of the medical certificate to that effect to the justice who made the order should suffice to secure discharge. He further contended that the periodical revision of cases should be undertaken by a rota of justices of the peace; the point was to ensure the periodical bringing of cases before some authority. In large institutions the medical officer's quarterly report would be a sufficient protection to the patient; his remark applied to small institutions which guardians did not systematically visit.

Mr. Senior also raised the question of children of very poor mental condition being kept in the same wards as adult chronic mental cases, remarking that the influence was a bad one, as these children proved very apt imitators. Attempts to get such children to other institutions generally failed. He emphasised the importance of the relatives of the adult patient being warned of the case being about to be dealt with by the justices, and inviting a relative to be present to assist in the matter. In the case of mental disorder accompanying physical disease, such as pneumonia or severe neurasthenia, the patient should be placed under a limited order and certification avoided, as disclosure of the latter might militate against subsequent success in life.

EVIDENCE OF JUSTICES.

Mr. L. Whitemore, J.P., a judicial authority in the County of London, next gave evidence, based upon a large experience in dealing with petitions for reception orders in London in the case of private patients. He criticised the present duplication of authorities, which he regarded as unnecessary. He was in favour of the provision of a period of observation before a final judgment was pronounced upon a case. Also some care should be exercised in seeing that when a patient was discharged the destination to which it was intended to send him should be suitable; and he would like the after-care aspect of the question to be more stressed.

The last witness was Colonel P. Broome Giles, F.R.C.S., J.P., who gave his experiences as a justice under the Lunacy Act in Herefordshire, Bucks, and the borough of Folkestone. He said he would make it a sine qua non that the magistrate should personally visit the patient at the latter's home; it had been his own invariable practice. He also asked whether a friend of the patient, other than the petitioner, was present at the interview, and did all he could to bring this about. Cases of alcoholism, puerperal mania, and some of neurasthenia should have a lengthened period of observation before certification was entertained. During this time the patient could be kept in a large house with a resident medical man and nurses to keep watch on him or her. In his experience patients were given every chance of making complaints, and these were always listened to and investigated. In one or two cases ill-treatment had been established, and the attendants at fault were discharged. He had known only two cases in which the magistrate's opinion on a case was against that of the medical man, and in those cases he did not think the magistrate was the right type of man for the position. In his interviews with patients before certification it had not occurred to him to reveal to them his function in case they should wish to put forward a special plea to preserve their liberty; that was because he wanted them to feel no restraint. He had never known a patient discharged without the authority of the medical officer. Facts stated on the certificate to have been communicated by others he had always been careful to personally verify, sometimes asking people concerned whether particular statements were theirs. He would not make such checking by the magistrate obligatory; discretion should be allowed. In the case of complaints by patients while under detention, he talked to them in a locked room alone; he did not fear a homicidal outbreak, as he was once an amateur middle-weight boxer.

The Commission adjourned to a date to be determined.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 1ST, 1924.

Notifications.—The following cases of infectious disease were notified during the week—namely: Small-pox, 48; scarlet fever, 2238; diphtheria, 1170; enteric fever, 93; pneumonia, 863; puerperal fever, 39; cerebro-spinal fever, 3; acute poliomyelitis, 28; acute polio-encephalitis, 1; encephalitis lethargica, 40; continued fever, 2; dysentery, 4; ophthalmia neonatorum, 102. There were no cases of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, none from small-pox, 7 from scarlet fever, 33 from diphtheria, 29 from measles (a sharp rise), 46 from influenza. In London itself the deaths from diphtheria numbered 9 and from infantile diarrhœa 28.

Reviews and Notices of Books.

THE MAYO CLINIC.

Collected Papers of the Mayo Clinic and the Mayo Foundation. Vol. XV. 1923 (published June, 1924). Edited by Mrs. MELLUISH. London and Philadelphia: W. B. Saunders Company. 1924. Pp. 1377. £3 3s.

"THIS volume marks a radical departure from the policy previously pursued in the selection of material for reproduction in the Collected Papers of the Mayo Clinic." Put briefly, whereas in the past an effort was made to reprint all publications—an effort which has been unsuccessful since 1917—now, though every paper is at least mentioned, not all are set out in full. The volume is kept within reasonable limits by giving either brief abstracts or by merely citing the reference to the original publication. The articles chosen for this treatment are those of technical or limited interest to the few rather than of general interest to the surgeon or physician.

The arrangement of the volume is similar to that of its predecessors. Subjects are dealt with by systems beginning with the alimentary tract. As usual, this section is of especial interest and contains much that is of great value. The articles from Russell Carman on the technique of gastric and intestinal rontgenology, and the findings in diseases of the whole alimentary tract represent the latest advances in this difficult subject. In this respect the publishers must share in our congratulations on the high technical achievement in the reproductions of X ray films. The urogenital section contains some excellent articles, of which the most instructive concerns diverticula of the bladder from the pens of Starr Judd and Albert J. Scholl. They hold the view that these sacs are of developmental origin, but only become the cause of symptoms later in life, the age of the prostatic enlargement accounting for nearly 70 per cent. of the total. Of 133 cases seen at the Clinic between 1894 and 1923 only two occurred in women. They favour removal by the extravesical route in most cases, and report an 8·1 per cent. mortality. In only five cases was the ureter involved, and in 20 there were associated calculi. Of these, in nine cases the calculi were in the diverticulum, eight in the bladder, and three in both the bladder and the diverticulum. In their series ten of the cases showed a carcinomatous change. The sections on ductless glands, circulatory organs, skin, head, trunk and extremities, and the nervous system all contain numerous papers of importance, pointing to the extensive work being carried out at the Clinic. One article perhaps may be singled out as being of surpassing interest. It deals with the problem of the administration of insulin by overworked general practitioners, and it contains helpful advice on this difficult subject. The section of technique contains three articles all dealing with local and regional anæsthesias in various regions. The first is by Starr Judd and William Meeker on sacral block anæsthesia in the surgery of the prostate and the bladder, and outlines the method of blocking the sacral nerves at their exit from the sacrum. The second—by William Meeker and Herman Hundling—describes and comments on the various approaches to the cervical plexus. For several reasons they advise the lateral oblique route, by which the needle is inserted just below the mastoid process on the mastoid-cervical tubercle line and directed obliquely downwards, injections being made where the nerves lie in relation to the cervical vertebræ. They conclude that the neck is one of the most favourable regions for local anæsthesia, and they advise use of this method in thyroidectomy, thyrotomy for removal of tumours, laryngectomy, œsophageal diverticula, for removal of glands, branchial cysts, tracheotomy, and ligation of blood-vessels. The third article by W. Meeker and Barnet Bonar describes the use of regional anæsthesia for gynæcological and obstetric operations.

The volume is prepared with the same care and thoroughness which has always characterised Mrs. Melluish's work, and the general get-up and the illustrations are of high standard. The appearance of these volumes from the Mayo Clinics is one of the landmarks of periodical medical literature, and we believe them to afford busy medical men one of the surest means of keeping abreast of the times.

THE NATURE OF DISEASE.

By J. E. R. MCDONAGH, F.R.C.S. London: William Heinemann. 1924. Part I., pp. 327. With 59 plates. £3 3s.

IT is often supposed that imagination has no place in the progress of natural knowledge. People sometimes think that Darwin learned all the facts of biology and then found that they inevitably added up to the theories which he put forward in the Origin of Species. In fact, of course, the theory came into his head first of all, and he then spent a good many years reading the literature and making experiments in search of facts to illustrate and demonstrate it. The question of the proper share of the imagination in scientific work has often been discussed with no more profitable result than the conclusion that some people have the faculty of using their imagination in such a way that the highest type of progress ensues, and that others are led by their imagination into what is just nonsense. The history of science has plenty of examples where subsequent knowledge has entirely disproved a contemporary judgment that an author belonged to the second class. In view of which it is obviously wise to suspend one's opinion and leave the point open for each reader to decide for himself. But Mr. McDonagh's book is a large one, remarkably tedious to read, and in parts impossible to understand; and it is hardly fair to encourage others to embark on it without passing the opinion that they will probably come to the conclusion that Mr. McDonagh uses his imagination in an illegitimate way.

In more detail, the book is mostly about syphilis, and a good deal of it seems to have been published before. The author deals with the life-cycle of the spirochæte, the theory of staining, the inflammatory response in epithelium, endothelium, and leucocytes, chemotherapy, blood coagulation, the Wassermann test and shock, and the whole centres round his conception of condensers and conductors and their action on the protein particles of the blood. Further parts are promised as the author's investigations proceed.

OPERATIVE SURGERY.

By W. S. BICKHAM, M.D., F.A.C.S., former Surgeon in Charge of General Surgery, Manhattan Hospital, New York; former Instructor in Operative Surgery, College of Physicians and Surgeons (Columbia University). London and Philadelphia: W. B. Saunders Company. In six volumes. Vol. IV. 1924. Pp. 842. £15 the set.

THE fourth volume of this work carries out the general plan and intentions of the author as evinced in the preceding parts already reviewed in our columns. It deals with operations upon the heart, pericardium, and thoracic œsophagus, abdominal surgery in general, except the colo-recto-anal regions, and abdominal gynæcology. There is the same encyclopædic description of operative procedures which have been devised and used. The surgeon in consulting the book will always have to select his methods for himself in the light of his own knowledge or the experience of others, but he will very seldom fail to find a clear account of any operation he may wish to perform. Curiously enough, no account is given of the inguinal method of operating upon femoral hernia, nor, for that matter, of Roux's method. In diaphragmatic hernia the combined abdominal and thoracic approach has been highly spoken of by some surgeons. A description of it would have been helpful. Such ill-advised procedures as gastro-

pexy and gastroplication are described as though they were commonly carried out, whilst the same remark may be made of the use of Murphy's button for gastro-jejunostomy and other anastomoses. The section on surgery of the biliary tract is particularly good. Where such an enormous field is covered it is easy to find examples of omissions here and there. They are, however, commendably few, and the author is to be congratulated on maintaining the high standard set by the previous volumes.

DEAF-MUTES.

Les Sourds-Muets. Étude médicale, pédagogique et sociale. By Dr. G. DE PARREL, former Chef de Clinique, and Mme. GEORGES LAMARQUE, Professor, at the National Deaf and Dumb Institution of Paris. Paris: Les Presses Universitaires de France. 1925. Pp. 445. Fr.35.

THIS excellent work deals in a very complete manner with the whole problem of the deaf and dumb child. The first part has the more direct medical interest, and begins with the classification of deaf-mutism; the main division into hereditary and acquired, not into congenital and acquired, is insisted on. Ætiology is fully discussed, and the preponderant rôle of syphilis is emphasised, while a distinction is drawn between congenital syphilis and the "syphilitic heredity." A very full description is given of the complete medical examination of the deaf and dumb child, in which a careful examination of the eyes, and correction of visual defects, are rightly insisted on. There is an interesting chapter on the care of the child before school age, which should be of great value both to the parents and doctor; exercises at home, preparatory to formal instruction in lip-reading, are included in this chapter, and form an important part of the treatment too often neglected. The second part of the book deals with the educational aspects of the subject; the deaf and dumb schools of France are fully described, together with the details of the methods of instruction which are employed; and, finally, the civil and social position of the deaf-mute, and his prospects and attainments are discussed.

The book is written with knowledge, sympathy, and enthusiasm, and deserves to be read by the many who are, or should be, interested in the subject.

SURGICAL DISEASES OF THE DOG AND CAT.

With Chapters on Anæsthetics and Obstetrics. Third edition. By FREDERICK T. G. HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E. London: Baillière, Tindall and Cox. 1924. Pp. xii.+435. 15*s*.

THE third edition of this book has been eagerly looked for, for the second edition has been out of print for some years. The application of aseptic and antiseptic principles to the surgery of the dog and cat has enabled great advances to be made in the art of treating injuries or diseases by operation. The internal diseases of the abdominal and pelvic cavities of the dog and cat were more or less closed ground as regards diagnosis and treatment until laparotomy was initiated. Major Hobday was one of the first in this country to carry out laparotomy on a large scale on these animals, and his book is therefore of especial interest to veterinary surgeons.

The successful anæsthesia of a canine or feline patient is as important as the proper carrying out of the operation. The instructions and advice here given on local and general anæsthetics may be accepted as authoritative since they are based on thousands of records extending over a period of some 30 years. The various regions of the body and the diseases or mishaps that may necessitate surgical procedures are dealt with in order, the eye, ear, mouth, throat, neck, stomach and intestines, rectum and anus being discussed in separate chapters.

The account of operations on the urinary organs and male and female generative organs is specially lucid and a valuable chapter is added on Difficult Parturition. The application of X rays to the diagnosis of canine and feline ailments is well discussed. Illustrations from actual photographs of diseased and pathological conditions are included and greatly enhance the value of the book, which may be read with advantage by all who are interested in comparative surgery.

COMPARATIVE ANATOMY.

Vorlesungen über Vergleichende Anatomie—Ernährungsorgane. By OTTO BÜTSCHLI, Professor of Zoology in Heidelberg. Berlin: Julius Springer. 1924. Pp. 380. $6.45.

THIS book consists of an account of the digestive organs of all classes of animals. Two-thirds of the volume are devoted to the invertebrata, the remaining third to the vertebrata. The author has succeeded in compressing an immense amount of information into the comparatively small space of 380 pages. The book contains many illustrations, mostly line drawings, which adequately fulfil their purpose. Fig. 188, which shows the palate and cheek papillæ of the deer, is a new and welcome departure from the usual text-book illustration. As this work appeals to the teacher and research-worker rather than to the student, it is greatly to be regretted that there is no bibliography.

JOURNALS.

JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Vol. XXVII., No. 4. Pp. 349–469. October, 1924.—Histological Observations in an Unsuspected Case of Epidemic Encephalitis in a young child, by C. Da Fano and Helen Ingleby (London). A child developed symptoms like those of juvenile amaurotic idiocy after an attack of whooping-cough and slowly grew worse, dying of broncho-pneumonia a year after the onset, at the age of 2½. The brain showed the lesions of chronic epidemic encephalitis with widespread degeneration of nerve cells and intense proliferation of endothelium and neuroglia. "Minute bodies" were present. The lesions are fully illustrated.—Pathological Changes in the Musculature of the Alveolar Passages in the Lungs, by J. Harkavay (Freiburg). An interesting study of changes in the musculature of the finer ramifications of the air-passages. Hypertrophy occurs whenever there is chronic obstruction to expiration (e.g., chronic cardiac disease, emphysema), but not in inflammatory lesions, and indicates an active rather than a passive rôle for these fine strands of muscle, particularly in association with the blood-vessels, to which inadequate attention has been paid hitherto.—Urea Retention in Experimental Oxalate Nephritis, by J. S. Dunn, the late A. Haworth, and Nora A. Jones (Manchester). A series of urinary and blood analyses in experimental nephritis in rabbits which are particularly interesting in comparison with the present vogue of similar measurements in man. Oxalate nephritis seriously impedes the excretion of urea, which accumulates in the blood, but not that of water.—The Complement-Fixation Test in Tuberculosis, by F. Eleanor Williams and Lucy M. Bryce (Melbourne). As others have found, the test is useful but not infallible.—The Modification of the Bone Lesions in Rickets due to Mobility of the Part, by J. P. McGowan (Aberdeen). Imperfect calcification leads to mechanical weakening at the epiphyseal junction, and the mobility and even dislocations resulting from this are the cause of many of the gross anatomical changes and the fibrosis of the marrow which occur in rickets and scurvy.—Rats and Foot-and-Mouth Disease, by J. M. Beattie and D. Peden (Liverpool) (see p. 1028).—Bone Marrow Embolism of the Lungs in a Rabbit, by J. S. Dunn (Manchester). Figures and describes pieces of bone marrow found in the lungs of a rabbit after fracture of vertebræ.—The Bacteriology of Fowl Typhoid and Allied Infections, by J. W. Edington (Sheffield).

Very careful cultural agglutination and complement-deviation tests show that the two organisms, *B. gallinarum* and *B. pullorum*, which cause fowl typhoid and bacillary white diarrhœa, are indistinguishable; both are quite different from *B. avisepticus*, which causes fowl cholera. Three local epidemics were due to *B. pullorum*.—Fermentative Reactions of the Diphtheria Bacillus, by C. C. Okell and E. M. Baxter. The fermentative reactions of real diphtheria bacilli are uniform and constant.—The Experimental Study of Gastrotoxic Serum, by C. Bolton (London). Polemical.—Differentiation of Streptococci on Chocolate Blood-agar, by H. W. Crowe (Harrogate). Details of the reactions of a number of strains on the author's medium are given, with some correlation of the scheme so obtained with other classifications.—Anatomical and Parasitological Details of Two Cases of Streptothrix Infection, by H. A. Haig (Cardiff). One due to *Nocardia israeli*, the other, in which the heart was involved, to *Nocardia bovis*.—Diphtheria of Fowls, by W. M. Crofton (Dublin). On the evidence of cultures and the success of prophylactic immunisation the author thinks that fowl diphtheria is due to an influenzoid bacillus.—Obituary notices of E. Emrys-Roberts, A. C. O'Sullivan, G. A. Wyon, E. Beaton, B. H. Wedd, and A. Haworth, with portraits of E. Emrys-Roberts, A. C. O'Sullivan, and S. G. Shattock, and an index are included.

BRITISH JOURNAL OF SURGERY.—The October number contains Sir D'Arcy Power's fourteenth Eponym—the Wheelhouse Operation.—W. A. Cochrane describes a method of treating fractures of the leg and ankle by plaster of Paris, and the overcoming of residual deformities by wooden wedges introduced into cuts in the plaster cast.—G. Keynes records three cases of squamous-celled carcinoma of the renal pelvis.—R. J. M. Love brings forward some remarks on prognosis in acute appendicitis.—S. Pringle describes a new method for the aseptic resection of the intestine.—R. F. Young records five cases of polycystic kidney and briefly reviews the causation, symptoms, and treatment of this condition.—T. H. Burlend and D. J. Harries publish their case of a white myeloma at the lower end of a radius in a girl of 9 years. Their resection of the bone was followed by a beef bone graft, which was shown radiographically to be slowly absorbed. They find themselves in agreement with the recent Edinburgh teaching that myelomata are tumours of osteoclasts and not marrow tumours.—H. A. Bruce reports a plexiform neuro-fibroma of the solar plexus.—Prof. C. A. Pannett records his methods and his results in a series of cases of duodenectomy for duodenal ulcer.—Sir G. Lenthal Cheatle adds a ninth case of Paget's disease of the nipple to his previously published series in this journal, Volume XI.—A long and most interesting paper on the transplantation of the fibrous tissues in repair of anatomical defects, by W. E. Gallie and A. B. Lemesurier. They show how fibrous transplants may be utilised in injuries to tendons and ligaments, certain fractures, e.g., the patella, certain deformities, and hernia.—Submaxillary salivary calculi are discussed by Hamilton Bailey.—F. Gordon Bell reports three cases of metastatic tumours in bone from the thyroid gland.—A. Maclennan suggests a new method of arthrodesis in the tarsal joints.—H. C. Edwards reviews the chief features of calculous formation in cystinuria.—Retro-peritoneal catheterisation of the ureters is described by Andrew Fullerton for those cases in which changes in the bladder render the usual manœuvre impossible.—M. J. Stewart and T. B. Mouat contributed a valuable article on fibroma of the abdominal wall.—J. Gaymer Jones discusses chronic intussusception and reports 15 cases.—The following rare cases are reported: (1) M. W. Bulman, Volvulus of the Cæcum; (2) A. H. Southam, Sarcoma of the Metatarsus of an Infant; (3) E. W. Johnson, Epithelioma of the Penis; and (4) C. P. G. Wakeley, Fibro-sarcoma of the Orbit with Multiple Secondary Deposits.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

XXIII.—THE MEDICAL LOCUM TENENS.

BY JAMES NEAL, M.R.C.S. ENG.,
GENERAL SECRETARY OF THE MEDICAL DEFENCE UNION.

ANY medical practitioner who acts temporarily as a substitute for another medical practitioner is technically a locum tenens.

A Difficult Position to Fill.

The position of a locum tenens is often very difficult. The practice into which he suddenly enters may be conducted on lines with which he is entirely unfamiliar. The principal may have had but little opportunity of making the locum acquainted with his methods, or of explaining in detail the various cases for which the locum must now assume responsibility. Not only are the patients complete strangers, but the district and local features may be entirely unknown, and as a rule the locum has not even the advantage of knowing the principal. It is not surprising in such circumstances that complaints are sometimes heard of the unsatisfactory character of a locum tenens. Difficulties must necessarily occur when an unsuitable locum is placed in charge of a practice, and the principal should therefore take great care in the selection of a substitute.

It may happen that a medical man in practice is asked to see a patient during the absence of a colleague through illness or other cause. In such circumstances the locum tenens must carefully avoid doing or saying anything calculated to prejudce his colleague's interests, and must on no account consent to remain in attendance on the patient when his colleague is once more available. He may reasonably claim to be remunerated for his services, but that should be arranged with his colleague and not with the patient. Frequently no claim is made for payment, more particularly when the service can be reciprocated.

Mutual Coöperative Schemes.

In many areas it is now quite usual for the local practitioners to arrange systematically to deputise for each other whilst on holiday, and so avoid the necessity of importing complete strangers as substitutes for the absentees. The arrangement works well in many cases, and is highly creditable to those concerned. A very elaborate scheme has been arranged at Leicester in connexion with the Public Medical Service. The benefits of the scheme are limited to those who are prepared to do some of the work of absent members. Each practitioner who avails himself of the scheme is required to contribute £1 4*s.* a week for the first and second week of his absence, £6 6*s.* for the third and fourth week, and £8 8*s.* for the fifth and any further week. The general expenses of the scheme are a first charge on the fund so created, and the balance is distributed in proportion to the number of units to the credit of each practitioner sharing in the work. A somewhat similar scheme has been arranged by the London Panel Committee.

In those districts where successful holiday schemes are in operation the local practitioners are necessarily on good terms with each other, and the practices are carried on with due regard to the best ethical traditions of the profession. It is satisfactory to know that such arrangements are becoming more general every year. In many cases, however, it is not possible for local practitioners to undertake all necessary deputising for each other, more especially at busy times, and for various reasons a whole-time locum tenens must sometimes be obtained from elsewhere.

Agencies and Fees.

Every medical agent has a list of medical practitioners willing to undertake locum tenency work, and can usually supply one suitable for the particular kind of work to be done. Great care must always be taken to verify the registration of anyone employed as a locum tenens, even when recommended by a medical agency. During the last few years many instances have occurred of unqualified persons obtaining such posts, and in one particularly flagrant case investigated by the Medical Defence Union the same individual had been sent to no less than three practices by an agency before it was discovered that he possessed no qualifications whatever. The best medical agencies make it their business to inquire carefully into the suitability of those they recommend, and unless a principal is so fortunate as to have personal knowledge of a practitioner who is available to take charge during his absence, he will be well advised to rely upon the experience of a good agent rather than to employ a complete stranger on the strength of his own assurances. Moreover, when a locum tenens has been employed who is satisfactory, it is very advisable that the principal should endeavour to obtain his services each year.

The fees now paid to a locum tenens vary usually from seven to ten guineas a week, the employer providing full board and lodging and all travelling expenses. It would obviate many difficulties if the principal would explain his domestic arrangements beforehand, the amount of alcohol he allows, the limits he imposes on the use of his motor-car, and other small points, which, if undefined, may be a cause of friction. The engagement commences from the time the locum leaves his home or the agent's office, and includes the time occupied by his return journey. Temporary engagements are usually on a weekly basis, sometimes by the day only, and it is rarely that monthly contracts are made.

Restrictive Covenant.

Although owing to the temporary character of the engagement formal written contracts are frequently dispensed with, it is desirable to have a properly drafted agreement in every case, and the agreement should include a restrictive covenant against practising within a stated distance for a reasonable period of time. This proves of special value if the principal should die and the sale of the practice become necessary. But in all cases where this precaution is omitted there is a danger of trouble arising. Complaints are frequently made that a practitioner has established himself in a district where he has previously been employed as a locum tenens. I am not prepared to say that a man who has acted as a locum tenens in a particular place, possibly for only a week, is for ever debarred from setting up in practice in that locality. But it must be admitted that a man who sets up in practice in a neighbourhood where he had formerly been employed as a locum tenens for any length of time, even if he invariably refused to attend any of the patients of his former employer, would expose himself to suspicions which would necessarily injure his professional reputation.

The principal is entitled to receive all fees earned by the locum, including fees for attending court, or inquests, or for performing post-mortem examinations, though if any of such work has to be done after the engagement has terminated the locum is entitled to retain the fees or to be suitably recompensed for the work.

Questions of Obligation.

When a locum tenens is obtained from a medical agent a fee is usually charged to the principal, payable as soon as the appointment is made. A similar fee is also charged if the principal at any time reengages the locum, unless it should be done through another agent. If a locum tenens subsequently buys the practice, or a share in the practice, the principal may become liable for commission to the agent on the purchase money, though in some cases the agent stipulates that the commission will only be payable if the purchase of the practice or a share is made within 18 months of the introduction as locum tenens. The medical agent also charges the locum tenens a commission on the salary received, and if the locum tenens should be re-engaged as locum tenens or assistant, except through another agent, a similar commission is payable. If the locum tenens be admitted into partnership without payment of a premium, such commission, if any, as is payable to the agent who originally introduced the locum tenens is usually based on the gross value of the share taken over by the locum tenens.

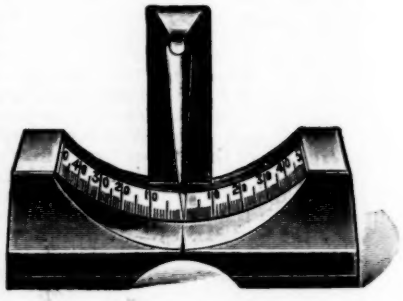
It is important for the principal to remember that the cost of employing a locum tenens—namely, the fees paid to the locum tenens and the cost of housing and feeding him—should be charged as expenses of the practice when making the returns for income-tax.

In law the principal is responsible for the consequences of any act of his locum tenens performed in the course of his employment and duty, this being the ordinary responsibility of the principal for the acts of his agent. But the locum tenens also is responsible in law for his own acts, and the aggrieved party has the right to select whether he will bring the action against the principal or against the locum tenens, or against both. It is most desirable, therefore, that the locum tenens should be a member of one of the medical defence societies, and this might reasonably be made a condition of his employment.

New Inventions.

AN APPARATUS FOR ESTIMATING THE DEGREE OF ROTATION IN THE SPINAL COLUMN.

UP to the present, although many forms of apparatus have been made for the purpose of estimating the degree of lateral curvature in the dorsal and lumbar regions of the spine, no satisfactory one has been produced for measuring the amount of malrotation. To meet this want I have designed a simple apparatus as depicted in the illustration, named the "Spinal Torsionometer." It measures about 4 in. by 2¾ in., and can therefore easily be carried in the pocket. It consists of an aluminium block with a scale to record degrees, above which is suspended a fine needle which immediately registers the angle at which the block is lying. The subject to be examined is placed face downwards on a couch; a line is drawn with a dermograph through the tips of the spinous processes in the region desired together with transverse lines to denote the middle of each such process. The torsionometer is placed transversely on the points of intersection of the line on successive vertebræ and the amount of rotation (if any) is read off. If, instead, the torsionometer be placed longitudinally over each point of intersection, the amount of antero-posterior curve can also be estimated.



The apparatus can be obtained from Messrs. Arnold and Sons (John Bell and Croyden), Ltd., 50–52, Wigmore-street, London, W. 1.

EDGAR F. CYRIAX, M.D., Ch.B. Edin.
Welbeck-street, W.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 15, 1924.

PATHOLOGICAL UNITS.

IT was said by one of the greatest of all clinicians that "To know the natural causes of disease is to know more than half medicine." Pathology is the study of the natural causes of disease and upon its efficient maintenance depends the status of the medical art. Recent donations from the Rockefeller Foundation for pathological departments, and the handsome offer just made known of a gift to the Westminster Hospital of a pathological unit as a memorial to the late Dr. JOHN BURFORD CARLILL, suggest an inquiry into the present position of pathology and the lines upon which it is to develop. Pathology in this country is approaching a critical period in its career as an associate of medicine. In the history of each of the subjects ancillary to medicine and surgery—the two dominant arts in the medical curriculum—there has been the same trend of events, as the subject has grown from being an interesting divagation from the main lines of professional life, pursued by a select few, until it has reached the status and importance of being handed over for its study, teaching, and further development to a specialist. Anatomy was the first to evolve along these lines, physiology followed within living memory, pathology and bacteriology are now separating from the parent subjects. When a pendulum swings it swings back. Extreme positions are taken up before ultimate and tried stability is reached. To many of us the anatomy of our student days was a dry business of systematic lectures upon bones and joints, with little humanising influence beyond the contact with comrades in the dissecting room. To-day the dull facts are illumined by the broader conceptions of comparative study and embryological knowledge; the anatomy of the living body is being widely taught by the aid of radiography and the lessons to be derived from the changes induced by disease. Physiology, too, has had its renascence. The frog has been relegated to its proper sphere in the vertebrate world; human and mammalian physiology are stealing back.

The position of pathology is less definite. It appears to be that of one standing at parting ways, uncertain which to take. Only recently did the pathologist become a specialist; little more than ten years ago W. S. GREENFIELD, whilst occupying a chair of pathology, was holding classes in clinical medicine in the Edinburgh Royal Infirmary. The generation which followed, dominated largely by the influence of this doyen of British pathology, developed mainly as teachers of morbid anatomy and morbid histology, and of them it may be said that they have raised these branches of pathology to a singular level of excellence. This exclusive specialisation has, however, brought in its train certain penalties. A gradual process of drift has led to a separation from clinical interests, and too close an attachment to morbid anatomy has caused a loss of adequate consideration for the pressing problems of the clinician. The latter cannot evade his share of responsibility, for too often he has come to regard the pathologist as a useful though modest addendum to the hospital staff, able to give enlightenment upon the cause of death which he has failed to discover but whose possible usefulness at an earlier stage of the patient's downward course had not entered his mind. The clinician and the "pure pathologist," obsessed by morbid anatomy, must between them accept the paternity of that ungainly hybrid the "clinical pathologist," who is often condemned, during the hours of his hospital service, to carry out uninspiring diagnostic tests that could be done quite well by a technical assistant under supervision, and to make up vaccines in his spare time. The artificial separation of two intimately connected branches of medicine has deprived each of the parties concerned of the natural benefits which should arise from coöperation and has diminished their individual professional usefulness. The pathologist on the one hand is tending to submerge the earlier clinical instincts which led him into the study of medicine, and to turn his natural bent for investigation from the clamant but elusive problems of disease towards the solution by animal experiments of problems of his own conception; while the clinician on the other has to rely upon diagnostic tests performed by someone in a distant laboratory. Where this lack of conjunction is most complete it leads to the production of a quite unwanted race of physicians, skilled enough in the arts of AUENBRUGGER and LAENNEC, but inadequately versed in modern scientific methods and wholly lacking in that mental outlook which daily familiarity with research and its sorrows engenders.

Pathology, as we have said, is at a parting of the ways, and just as many young men hesitate in the choice between a life in clinical medicine and a life in the pursuit of natural knowledge, and often fall into ineffective attempts to compromise the two, so pathology must make up its mind more clearly as to what its objects are to be. It seems as if the future will see diverging lines of development and that we shall have a pathology that is really and sincerely medical, and a pathology of a more generalised type which is frankly biological in its outlook. The association of medical pathology with medicine is at present not close enough. So far, in spite of its drawbacks, it has never failed to attract some of the best students of our medical schools, but the infusion of vitalising principle seems to be essential in the near future if it is to continue to do so. A subject that is not well remunerated must offer other attractions if it is to compete successfully and maintain its existence. What is overshadowing pathology at the present time is its divorce from clinical medicine The subjects are admittedly too large for any one individual to engage fully in both pathological and clinical work, but it would be of unquestionable advantage to everyone—pathologist, clinician, and patient alike—if the mechanism for closer coöperation existed in every pathological unit. The laboratory should be a training ground for the young clinician; in serving an apprenticeship there he would gain experience of great value to himself, and in doing so would relieve the pathological staff of a part of the heavy burden of routine work which, with the time occupied in teaching, leaves scanty opportunity for serious research. There is, we think, little doubt that in institutions in which a period of service in the laboratory is looked upon as a normal preparation for a post on the medical staff medicine is found in its most flourishing condition. A pathological unit should be a meeting-place in which every aspect of a medical problem can be viewed and reviewed in the light of specialised knowledge of the processes of disease. The tentacles of the pathological institute should penetrate the wards and other departments of

the hospital, and free access should be provided for the laboratory worker to bring his special knowledge to bear upon clinical problems. The whole matter is vital and generally agreed upon in principle, but the stirring to action is slow in coming. Much depends upon the creation of what is called in modern phrase a suitable atmosphere. Every member of the clinical staff should feel that it is not only his right but his duty to keep in personal touch with what goes on in the laboratory, and on their side the pathological staff must be allowed to slough the impeding tradition that their main purpose in life is to cut morbid specimens in the dead house. It must be an everyday and natural thing for them to enter at least some portion of the medical wards or out-patient departments where they may see disease in its active state. In a word, the pathology of the future must be compact, more of morbid physiology and less of morbid anatomy. The director of the pathological unit should have a guiding hand upon all the laboratories of the hospital, where there are more than one of these, and whilst remaining a whole-time pathologist might well have access to a certain number of beds, with facilities for investigating special types of case as the need arises. The recommendation made by the CARLILL trustees that a few beds should be placed at the disposal of the director of the proposed pathological unit is a step in the right direction.

Improvements of this sort will do much for medicine, but they may put further off than before the prosecution of the more generalised study of pathology which Prof. A. E. BOYCOTT urges elsewhere. For this some provision and encouragement are needed too; the contributions which it will make to medicine will be perhaps sporadic and scattered, but they will be none the less considerable than the daily help which medical pathology will give. Medicine has in the past found some of its best advances in fields without any obvious clinical relations, and schools of pathology in the science faculties of our universities will further medicine as well as biology and will do much to clarify the present unsatisfactory compromise of conflicting ideals.

MEDICAL EXAMINATION FOR LIFE ASSURANCE.

THE medical problems of life assurance have formed the subject of careful study both in this country and in America. The transactions of the Assurance Medical Society, which was founded in London in 1893 as the Life Assurance Medical Officers' Association, constitute a striking record of the work done in this country. They are in effect a veritable encyclopædia of reference in regard to these problems, and to this encyclopædia a notable addition has just been made in the suggestive presidential address of Dr. G. GRAHAMSLEY HOWITT. The history of life assurance and of the association of the medical profession with it is well worthy of study. The earliest appointments as medical advisers to insurance companies Dr. HOWITT has been able to trace were made in 1823. The evolution of the medical report from its earliest simple type to its present form, which is essentially the same for most companies, has taken place largely during the last half century. Having commented on the origin and development of insurance medicine, Dr. HOWITT proceeded to discuss some of the problems introduced by the employment of laboratory methods in the study of disease. This part of his address is published in abstract on p. 1047 of this issue of THE LANCET. It will repay study by those concerned in the medical examination of candidates for life assurance. Dr. HOWITT points out that the advances made by instrumental and laboratory methods in clinical medicine sometimes seem to raise fresh problems for the insurance medical examiner. He instances the electrocardiograph and the polygraph as examples of instrumental methods. These instruments have helped to demonstrate that some forms of cardiac irregularity are not of serious import, and have thus rendered certain sufferers eligible for life assurance with or without an extra who would formerly have been declined or heavily rated. The difficulty the insurance medical examiner is placed in is that he cannot as a rule obtain the information these methods are capable of affording, owing either to the expense or the time involved in their application.

As an example of the problems introduced by laboratory methods Dr. HOWITT instanced glycosuria. Study of the blood-sugar curves before and after the administration of glucose have demonstrated that there is a form of glycosuria called renal glycosuria or diabetes innocens in which the utilisation of sugar in the body is not interfered with, but in which the renal "leak-point" for sugar is lowered. Such cases are comparable to the condition of functional, postural, or adolescent albuminuria, and, like it, they would seem to be risks assurable with a moderate extra or with some small form of rating, either by limitation of the period for which the assurance is granted or by limiting the payments to a given age. Unfortunately, our knowledge of renal glycosuria is of such recent date that no sufficient data are available to forecast the future of such cases. It is one of the insurance problems which is still sub judice. The difficulty of the examiner is, however, not only in the rating of such cases, but in their differentiation from more serious forms of glycosuria and from true diabetes. A blood-sugar estimation and sugar-tolerance test is an expensive and time-consuming process for which the companies will not at present pay. It is only when a proposer is willing himself to submit to and pay for such an examination that it is possible to get this counsel of perfection carried out. Failing this, the examiner has to be content with several examinations of the urine under different diets—an unsatisfactory and unconvincing procedure.

Advances occur in insurance medicine as in all other branches of medical science, though necessarily more slowly. In this connexion it is of interest to note the recent action, to which our Berlin Correspondent has called our attention, of the life insurance companies in Germany in regard to medical examination. During the inflation period the companies tried to reduce their expenses and dispensed with medical examination. When the currency was becoming stabilised, they were disinclined to resume the use of medical examination for fear of diminishing their business, owing to the possible objection of proposers to be examined. They therefore, not infrequently, gave policies on the statements of their agents. The result has been some expensive law suits by the companies and a distrust of the companies on the part of some intending insurers. The tendency, therefore, is for the companies to return to the old method, and to require medical examination once more. Insurance without medical examination has been tried in this country on a not inconsiderable scale by some companies, but very careful safeguards in the form of personal statements are required, and in cases of doubt medical examination is often insisted on. It is instructive to observe the results in the German experience. This would seem to indicate that careful medical examination, though not essential, is a valuable safeguard to the companies.

DR. LOMAX AND HIS CRITICS.

IT will be remembered that Dr. MONTAGU LOMAX was the author of a book, "The Experiences of an Asylum Doctor," which attracted considerable public attention, and resulted in the appointment of a Departmental Committee to inquire into the allegations therein made as to the mal-administration of the mental hospitals. This Committee, before which Dr. LOMAX himself declined to give evidence, made its report, and Dr. LOMAX almost immediately wrote a reply to it, but, for a reason which he does not state, delayed its publication for nearly two years; it now appears in the form of a pamphlet[1] of 48 pages, and in view of the fact that a Royal Commission is now deliberating on the administration of Lunacy Law (see p. 1019) is worth discussing in detail.

Dr. LOMAX is an exceedingly able and convincing writer, more convincing, in fact, than the surprise which he affects at the interest excited by his book. But in this controversy he is employing a method which in the columns of a journal eventually calls for the editorial footnote that "this correspondence must now cease." The subject of his protest has been ventilated so thoroughly, and so much has been conceded, in practice where feasible and elsewhere in principle, by the authorities to whom he is opposed, that the outstanding points of difference consist, at least in part, of details as to facts, motives, and procedure which might well be composed in a single evening were Dr. LOMAX to dine amicably with a member of the Board of Control. For example, no less than three pages in this reply are devoted to what can only be described as a quibble over the method of calculating recovery-rates, a quibble all the more irritating because the author himself confuses annual admissions with the total resident population of an asylum. He thereby evolves a *reductio ad absurdum* (including, by the way, an actual mistake in simple arithmetic) intended for certain statistics as to recovery-rates, which, however, recoils on the author himself. Again, in the observation in the Committee's report that "Dr. LOMAX was the only medical officer who neglected to enter in the prescription book the quantity of croton oil he prescribed," he assumes the word "quantity" to refer to numbers of doses, although they had previously "laid stress on the fact that in my first six months of office I prescribed 253 doses." It can obviously refer only to the quantity of the individual dose, and the singularly puerile argument based on this misunderstanding serves no purpose but to call to mind the methods of a junior school debating society. Two questions of fact on which no outsider can form an opinion are the subject of similar treatment—the exact date at which the "exercise pen" at Prestwich was brought into use, and the existence or otherwise of a "quiet, melancholic patient" who is alleged to have been put "behind the table" with degraded dements. The usefulness of comparing the total quantities of sedative drugs used annually in different asylums is hotly denied, and the value of bromides in epilepsy questioned. The text is also adorned by frequent quotations from the *Asylum Workers' Magazine*, a periodical whose attitude to the work of the institutions staffed by its own subscribers seems hardly flattering. One of these (p. 35), which suggests the entire abolition of the Board of Control, is so foolish and discreditable that its reproduction by Dr. LOMAX might be regarded as ill-advised even by his most ardent supporters. It is to be noted (p. 1) that Dr. LOMAX characterises his own original charges against mental hospitals as "vague and unsubstantial."

The main issues, however, are these. The Committee found that certain of Dr. LOMAX'S criticisms were justified, and some were not. Those that were justified concerned such items as classified accommodation, diet, clothing, parole, exercise, and adequacy in numbers and training of the staff (at Prestwich). Everyone concerned with the asylum service knew that there was room for improvement in these matters at many mental hospitals. The Committee naturally reported that such improvements were desirable. As Dr. LOMAX observes: "Of the 15 recommendations made by the Committee 13 were made by me in my book and in almost identical words." These improvements are, indeed, being generally, if slowly, carried out, as the financial stringency consequent on the war is relaxed; municipal finance is the key to the situation, and those local authorities who are able to find the money are getting the things done. It is outside the powers of committees, superintendents, and the Board of Control, against whom Dr. LOMAX'S attack is directed, to hasten these changes, except by "recommending"; if they are listened to, all is well; if they are not, they can do no more. But there were other charges in Dr. LOMAX'S book which the Committee characterised as "gross exaggerations" or "demonstrably untrue," charges of an exceedingly damaging nature as to the attitude and conduct of asylum staffs. These, unfortunately, he now repeats. "But perhaps one of the worst uses to which the locked cell is put is as a torture chamber, where the most horrible brutalities are often practised upon defenceless patients." No evidence is given in support of this allegation. "The idea that any patients, or even attendants, are allowed to *enjoy* the beautiful gardens and grounds by walking or sitting about in them may be dismissed as in most cases entirely illusory." This, and its context, mean that no effort is made to render pleasant the environment of the insane. "Suicides and escapes—those twin bugbears of the official mind—are in reality the expression of our callous and rigid administration, and the injustice of wholesale and indiscriminate restraint." This, and its context, imply that all suicidal tendencies are the product of ill-treatment. The average reader of such assertions as these must either disbelieve Dr. LOMAX, or conclude not only that the medical officers and nursing staffs of our mental hospitals are utterly indifferent to the welfare of their patients, but that they deliberately ill-treat them, and withhold from them the means of promoting their recovery.

Now it is understood to be Dr. LOMAX'S object to improve the treatment of the insane. He must know well that this treatment can only be undertaken in the existing mental hospitals, and that in improving their conditions, and particularly in securing the coöperation of the patient in efforts at bringing about his recovery, public mistrust is one of the most serious obstacles with which they have to cope. The consequences of legitimate criticism on the public attitude must be accepted, but when a well-known writer with professional experience talks of "torture," "warders," and "prisons," he is making himself responsible for a type of public prejudice and hostility which will long hinder the progress for which he is ostensibly working. It is from this point of view, and not merely because they are grossly libellous on his own and the nursing professions, that the repetition of these disordered accusations is most regrettable. The fact is that the maintenance of an injured attitude on Dr. LOMAX'S part is entirely unjustified. The Committee's report was admitted on all hands to be an exceedingly fair and well-reasoned statement of the facts. His legitimate criticisms were freely accepted, and his wild allegations of abuses were investigated with a patience, and reported on with a moderation of language, which perhaps they hardly deserved. It would have been more graceful on his part, and very much more useful for the public welfare, if Dr. LOMAX had made some acknowledgment of the work of the Committee, for whose long and gratuitous task he was solely responsible, and had coöperated in promoting the future welfare of the mental hospitals by ceasing his attempts to prejudice the public against their administrators. Instead he abuses the Committee, and flatly accuses it of prejudiced selection of witnesses and the suppression of evidence. Perhaps

[1] A Reply to the "Report of the Committee on the Administration of Mental Hospitals," 1922. By Montagu Lomax, M.R.C.S. National Society for Lunacy Reform, 32, Avenue Chambers, London, W.C. 1. 1s.

Dr. LOMAX has not heard that one of the principal witnesses who made allegations of ill-treatment at the inquiry has subsequently recovered completely, and has gratified the superintendent of the hospital in which he was confined by an entirely unexpected letter acknowledging that the ill-treatment of which he complained had never taken place.

GENERAL MEDICAL COUNCIL ELECTION.

THE Scottish and Irish Direct Representatives of the medical profession on the General Medical Council have been re-elected without opposition. Sir Norman Walker issued no election address; after 18 years of service on the Council he hardly needed to do so. The position of the Direct Representative is very different now from what it was in the early days, for the work of Executive and Penal Cases Committees is mainly done in camera; but Sir Norman Walker's service on the Examination Committee is there for all to read in the published reports, and it is owing in no small degree to his tactful pressure that clinical examinations in midwifery and gynæcology have been introduced by most licensing bodies. His hand will be also manifest in the interim report on anatomy and physiology to be presented at the forthcoming session of the Council. In many ways he has been a good friend to practitioners, and not in Scotland alone. Dr. Leonard Kidd has already served the Council for 19 years, and his presence there will be specially valued at a time when the old relations of Irish medical practitioners to the British Register and General Medical Council may be profoundly altered by hasty action.

The election of Direct Representatives for England and Wales is keenly contested as there are ten candidates for the four seats. Voting papers, posted on Nov. 12th, must be returned by Thursday, Nov. 20th. The four nominees of the British Medical Association—Dr. R. A. Bolam, Dr. H. B. Brackenbury, Dr. J. A. Macdonald, Sir Jenner Verrall—are all well known to practitioners in the country. Dr. Macdonald and Sir Jenner Verrall have already sat for a dozen years on the Council and have served on a number of its Committees. Dr. Bolam, who has shown executive ability of the highest order in the Association, has occupied a seat on the Council for six years, and Dr. Brackenbury's claims to the suffrage of his fellow-practitioners are too evident to require mention. They have all given practical evidence of tireless effort for the credit and welfare of the profession. The four nominees of the Medical Practitioners' Union—Dr. H. J. Cardale, Dr. H. F. Devis, Dr. E. A. Gregg, Dr. Gordon Ward—are men whose work has brought them closely in contact both with fellow-practitioners and with various State departments of medicine. Collectively, they stand for the view that in many directions medical education is unsuited for the requirements of the general practitioners, who form the bulk of the profession, and their plea is cogent that the weak points in the education of the future doctor can be best appreciated by those who are themselves engaged in general practice. The two independent candidates are Dr. John Brown, of Blackpool, and Dr. F. H. Westmacott, of Manchester. Dr. Brown would alter the National Insurance Act so as to restore the "ideal family doctor," and he would change the medical curriculum to make its keynote the prevention of disease. Dr. Westmacott stands as a consulting surgeon and teacher with wide experience of the requirements of medical education, as well as of the needs of the public. He possesses also an intimate knowledge of the education and practice of dentistry and of the requirements of the combatant medical services.

The choice set before practitioners is not easy, but it is an excellent thing that once in five years they should thus be brought to think carefully of the functions of the General Council of Medical Education and Registration and have to express their views as to what kind of representative they desire to send to sit on this Council.

Annotations.

"Ne quid nimis."

THE ORIGIN OF FOOT-AND-MOUTH DISEASE.

IT is said that if you plant a row of empty bottles upside down in your garden they will presently be occupied by healthy little ferns, which shows that fern spores are universally present and will manifest their presence if anywhere suitable conditions are provided for their development. The epidemiology of foot-and-mouth disease suggests that the virus of that elusive disease is in much the same position as the fern spores and that it is local conditions which determine the outbreaks of the clinical malady. It is possible, however, that it is really carried about by some moving agent—perhaps by man and his belongings, perhaps by birds—and any attempt to explore the possibilities of this is welcome. Prof. J. M. Beattie and Dr. D. Peden, of Liverpool, bring forward evidence in the last number of the *Journal of Pathology and Bacteriology* (vol. xxvii., p. 415) implicating rats. They show in the first place that feeding or inoculating rats with lymphatic glands from cows slaughtered because they had been in contact with declared foot-and-mouth disease can give rise to an affection characterised by œdematous swelling of the feet and vesicles and ulcers on the feet and on the tongue, and that this can be transmitted from rat to rat in series. From their observations it seems fairly clear that rats can be infected with the disease. In a proportion of these rats they also observed areas in the lung—solid, yellow, rather translucent—which they describe as gelatinous œdema. Examining carefully the wild Liverpool rats which are regularly dissected in connexion with possible plague, they found this lung condition in about 2 per cent., and they show that the places where these animals were caught are suggestively related topographically to slaughter-houses and places which had certainly had contact with infected cows by means of the sewers. Inoculations from these sewer rats supposed to be suffering from foot-and-mouth disease did not succeed in infecting fresh animals, and it must be admitted that the case for the wild rats having foot-and-mouth disease at all is not strong. A lung condition, not obviously dissimilar from that described, is known to occur both in wild rats and in many laboratory rats after their first youth, and Prof. Beattie himself does not regard the association which he describes as beyond doubt. However that may be, the fact that rats are susceptible to foot-and-mouth disease (first published in THE LANCET, 1924, i., 221) is important and suggestive, especially in respect of the persistence of infection in a locality. It is only under very exceptional circumstances that rats migrate or are carried over long distances, and their possible function in causing widely separated outbreaks in cattle is still more problematical.

THE EDUCATION OF MENTALLY DEFECTIVE CHILDREN.

THE education of mentally defective children presents problems of considerable interest to the general public, to medical practitioners, and to the members of local education authorities. In urban areas special schools are provided for those defectives who are able to derive reasonable benefit from attendance thereat, but in rural areas the numbers in any village are too small to allow of the formation even of a special class. The only method then available is the establishment of a residential school; this, however, leads to difficulties in that many parents object to the children leaving home and that the expense per head is considerably greater than in the case of day school education. In towns where there are special day schools the difficulties are of another character. While it is generally recognised that all but those of the lowest mental grade can be improved,

at least in habits, there are many who need entirely individual care, cannot coöperate in any of the forms of class work which are essential in a school, and disturb the progress of the other pupils by their erratic behaviour. The Education Acts have therefore, rightly, limited admission to special schools to those who are able to learn to control themselves and who are susceptible of class instruction; in other words, imbeciles are not eligible for admission. It has been realised that some provision of occupation for the children thus excluded would be desirable. The present position is, then, that in the rural districts there are children who need special education which is not available, while in both rural and urban areas there are those who could not be instructed in classes. The Board of Education recently, in Circular 1341 (THE LANCET, Sept. 27th, p. 666), drew the attention of local education authorities to the importance of the problem; the Central Association for Mental Welfare now supplement this by a memorandum, pointing out how their local branches can help in the solution. They are prepared to help in the following ways:—

1. By friendly visits to the home by those capable of advising parents as to the methods of training or controlling the child and also by teaching simple handicrafts or manual occupations which will excite the interest of the defective child and prevent further deterioration from sheer inertia.
2. By inquiring into the possibilities of employment after the school age.
3. By providing occupation centres for young defectives who have perforce been excluded from ordinary or special schools or who after the elementary school age are unable to be employed in ordinary industries but are capable of learning some simple handicraft.

The training in these centres is of the simplest nature: Control in conduct and social relations, domestic work, simple manual work, singing, and dancing games. To a very large extent each child may occupy itself with such tasks as he feels inclined, thus allowing of progress along any line of interest. He is not so confined to his place as in school, though he gradually learns the advantages of order, and finds that without it he cannot join in games with others. Some 50 such centres, open five half-days a week, are already established and are doing most successful work. In some cases they have prepared the way for the admission of a child to a special school by accustoming him to coöperate harmoniously with others. The local mental welfare associations work under the direction of the responsible officers of local authorities, and by coöperation with local mental deficiency authorities ensure the absence of overlapping and continuity of care for the individual defective from childhood onwards. There can be no question of the great advantage such centres and home visits provide for the defectives and their parents, while reducing in early life the need for institutional care, which is not only costly, but is a source of sorrow and anxiety to the parents.

BLOOD PLATELETS IN FATIGUE.

RECENTLY Dr. S. Caccuri[1] has published some interesting observations on the intimate connexion between the platelets and coagulation of the blood in the human subject after severe exertion. Eight individuals, almost all young and in good physical condition, were subjected to severe exertion by means of the ergostat for 40 minutes to an hour or even more according to individual resistance. Previous to the experiment a count of platelets was made and the time of blood coagulation noted; these observations were repeated immediately on conclusion of the experiment, and after 6, 24, and 48 hours. For the platelet count two methods were used, that of Giudiceandrea and of Aynaud; the technique for blood coagulation was that of Vierordt. It was found from these experiments that immediately after exertion there was a marked diminution in the number of platelets to the extent of one-third or even one-fourth. This plastrinopenia was not of long duration, and, in fact, in six hours was much reduced, and after 48 hours had returned to normal or given place to a definite increase (plastrinosis). At the same time there was delay in blood coagulation. The interpretation of these phenomena may be either a destruction of platelets or their unequal distribution. Plastrinopenia occurs in lymphocytic leukæmia, pernicious anæmia, and anaphylactic shock, and in these conditions abnormal forms of platelets are found, but after severe exertion only those in a complete state of development are met with, and this fact seems to indicate that instead of a destruction, a migration of platelets from the periphery to the deep organs occurs. The probable explanation is that fatigue liberates into the circulation harmful products, which influence in various degrees the different organs; and the blood resents this harmful action. As the toxins must be neutralised by antitoxins, it is especially the organism, not habituated to excessive exertion, which is incapable of a prompt and sudden reaction when taken unawares by their abnormal increase. When after 24 hours the organism is in repose and has been able to eliminate the refuse and the toxins are completely neutralised, and when the period of repair has begun, then the platelets return to the general circulation from the internal viscera together with those produced by the hæmopoietic tissues by a process of secondary reaction. The simultaneous change in the time of blood coagulation also shows the intimate connexion between the platelets and this physiological phenomenon.

[1] Il Policlinico, Practical Section, Sept. 29th, 1924.

AMŒBIC ABSCESS OF THE LIVER.

AMŒBIC abscess of the liver is a relatively uncommon condition in this country, and for that very reason is apt to escape suspicion as being the cause of chronic illness associated with fever. The diagnosis is sometimes quite clear because of the very pronounced enlargement of the liver, but sometimes obscure owing to the situation of the abscess high up in the right lobe of the liver under the diaphragm, where it is not easy to reach even with an exploring needle. The rare abscess in the Spigelian lobe cannot be revealed by puncture owing to its situation. A small abscess in the left lobe also may defy diagnosis for a long time. Since the disease in this country is rare, no single surgeon can have extensive experience of it unless he has lived abroad. He must, therefore, be guided in his treatment of such cases as fall under his care by the experience of those practitioners who constantly have to deal with dysentery and its complications. In another part of this issue Lieut.-Colonel E. Owen Thurston reports results of his treatment of 64 cases of liver abscess. All these occurred in Indians except one. There was no history of dysentery in one-third of the cases—a point to bear in mind in the differential diagnosis of enlargement of the liver. More than two-thirds of the cases—49—were treated by aspiration alone, and of these 40 recovered; four cases were aspirated and later drained when this proved ineffective, and nine were treated by incision and the cleaning out of the abscess cavity with gauze, followed by complete closure of the abdomen. All these cases recovered. There are three methods of treating liver abscess: open incision and drainage, aspiration, and the evacuation of the abscess cavity by a laparotomy, with subsequent closure without drainage. Aspiration alone is effective in a large proportion of cases, and is apparently the method of first choice. The author insists that it is necessary to give at the same time a large dose of emetine. He believes that open drainage should scarcely ever be necessary. It must be remembered that the diagnosis is not always certain before laparotomy. This is especially likely to be the case where the disease occurs in the European, who seeks help far earlier in the course of the illness than does the native Indian. Sometimes, too, as mentioned above, the abscess is in a situation inaccessible to the needle. For these patients the third method has many

advantages. It allows of complete exploration of the liver and gets rid of the pathological contents of the abscess cavity, whilst there is no danger of secondary infection occurring through an open drainage-tube. Emetine should be given at the same time. The open drainage operation is only indicated where it has been definitely proved that the infection is a mixed one. Amongst those surgeons who have had large experience of liver abscess and the treatment of dysentery by emetine, there seems to be a difference of opinion as to the possibility of an abscess of the liver, of any size, completely absorbing. In the *Indian Medical Gazette* for October, 1924, Captain A. Sargood Fry reports two cases of large abscesses, demonstrable by X rays, in the right lobe of the liver, in which the clinical cure of both patients, with complete absorption of the abscess, was effected by the administration of emetine hydrochloride hypodermically alone. He is of opinion that aspiration can in many cases be dispensed with, and he thinks that the spontaneous absorption of a large sterile abscess has no injurious effect upon the patient's health. Demonstration of the cure of those two patients without the aid of aspiration is interesting, but it may be doubted whether, as a general rule, it is advisable to withhold the assistance which aspiration affords to the obliteration of the abscess cavity. Aspiration has another advantage. It reveals those cases which, because of a secondary septic infection (14 per cent. of all abscesses), call imperatively for open incision and drainage.

LESSONS FROM RAT METABOLISM.

THE science of dietary is at the present time very much in its infancy, and there is a great need for further experimental work on nutrition. There is especially a lack of data with regard to suitable food for the nursing mother, the evidence at present available being conflicting. Experiments on animals are of direct value to the dietitian in so far as the principles of animal nutrition are applicable to human beings, and in the September issue of the *American Journal of Hygiene* Miss Nina Simmonds published the results of her investigations into the influence of diet on reproduction and rearing of young by the rat. The recorded data regarding growth and reproduction are based on experiments extending over nine years. Feeding experiments to be of value must be continued for long periods and should involve more than one generation; the fertility and nursing records are a much more sensitive test of a ration than is the growth curve. Miss Simmonds finds that the mammary gland in the rat cannot synthesise certain substances necessary to the well-being of the young—e.g., the amino-acid lysin, vitamin A and vitamin B (apparently the rat does not need vitamin C). "The nursing mother cannot, except in a very limited degree, put into her milk from her bodily reserves that which she does not receive in her food-supply." The experiments show that a high protein dietary during lactation does not interfere with the growth of the suckling. In fact, beneficial effects are quoted as a result of giving the mother rat a diet relatively rich in protein, although such a dietary does lead to progressive kidney degeneration with loss of function. Hartwell,[1] [2] however, on the other hand, finds that a diet rich in protein leads to an abnormal condition of the young, producing spasms and other morbid manifestations which frequently result in death of the offspring; she also demonstrates that these evil effects can be remedied by giving the mother rat a *large* amount of vitamin B—i.e., far more vitamin B than is necessary for the non-lactating animal. Simmonds comments on the supplementary value of certain proteins; for example, muscle protein is a good supplement for the protein of wheat and rolled oats, whereas liver or kidney protein proves more satisfactory when fed with rye and wheat proteins. A combination of the proteins from cereal grains and legume seeds is not a good one, at any rate from the point of view of reproduction. If a ration be low in calcium, the addition of cod-liver oil to such a diet enables the rat to utilise the calcium more efficiently than does butter-fat. Provided that optimal amounts of calcium and phosphorus are present in the diet, cod-liver oil has no superiority over butter-fat. A diet poor in calcium results in sterility; fertility can be induced by adding cod-liver oil to this diet; the rat can then rear her young, but at the expense of herself, for she loses calcium from her skeleton, and will collapse after rearing one or two litters. The superiority of cod-liver oil over butter-fat in this respect is due to the fact that cod-liver oil contains more of the factor concerned with bony growth than does the butter-fat. Simmonds seems to aim at finding one diet which is entirely suitable for all periods of life, while Hartwell [4] maintains that the periods of growth, gestation, and lactation probably have separate needs from a nutritional point of view. Mitchell,[6] in his paper on the nutritive value of proteins, states that the biological value of proteins for growth is a different problem from the biological value of proteins for maintenance, and further, that the conditions of gestation and lactation also call for separate investigation. We notice that Simmonds finds that it is only to within a very limited degree that the mother sacrifices her bodily reserves, yet Korenchevsky [5] states that the maternal organism will sacrifice her own tissues as far as possible for her offspring. Hartwell [2] has shown that a nursing rat which is receiving a badly balanced diet can lose as much as one-third of her body-weight in ten days. Simmonds' paper is an excellent survey of her own far-reaching experiments. They have yet to be brought into proper relation with the work of others in the same field.

[1] Hartwell, G. A.: THE LANCET, 1921, i., 1240.

[2] Hartwell: Biochemical Jour., 1921, xv., 563.

[3] Hartwell: THE LANCET, 1922, ii., 963.

[4] Hartwell: Biochemical Jour., 1922, xvi., 78.

[5] Korenchevsky: Biochemical Jour., 1923, xvii., 595.

[6] Mitchell: Physiological Reviews, 1924, iv., 424.

THE CAUSE OF DEATH IN MALARIA.

WHAT are the pathological conditions which bring about a fatal issue in malaria? Dr. C. Seyfarth, of Leipzig, has set himself to answer this question.* Between 1916 and 1918 he conducted 200 post-mortem examinations on fatal cases of malaria occurring in the severe epidemic in the Balkans, when much work was done by various pathologists, whom he quotes. In his consideration of the causes of death in malaria he leaves out of account cases where the patients, after a prolonged history of malarial cachexia, died of some intercurrent disease. Death in acute malaria may occur very suddenly, and is often puzzling to the pathologist, sometimes being ascribed to apoplexy, heat-stroke, or even to dysentery. Dr. Seyfarth differentiates seven causes of death as follows: 1. Septicæmia, which he states accounts for 30 per cent. of the total deaths in malaria. It is due to massive infection, when severe bodily hardships have reduced resistance and permitted an incredibly rapid numerical development of the parasites, so that one, two, or more are found in each red cell. In few cases does complete development of the parasite occur; toxæmia sets in, with coma and heart failure as sequelæ. Post mortem there is little pigmentation or other change in the internal organs. From such toxæmic cases must be distinguished those with parasitic embolisms in all or several organs. These latter cause the various clinical forms of pernicious malaria such as cerebral and pneumonic, and are due especially to the subtertian form. The emboli lodge in the capillaries of the central nervous system, in those of the heart, kidney, pancreas, or suprarenals, and can be found there post mortem. 2. Cerebral involvement causes 55 per cent. of the total deaths. Here there are few parasites in the peripheral blood, but they are found in quantity in the brain, which may show punctiform hæmorrhages. 3. Cardiac complications account for 14 per cent. of the total deaths. These cases, when syncope occurs,

* Arch. für Schiffs- u. Tropen-Hygiene, xxviii., 7, July, 1924.

often end very speedily. Death is due either to specific embolism of the coronary arteries, or to toxic causes with myocarditis or fatty degeneration of toxic origin. 4. Renal complications are responsible for about 1 per cent., emboli causing extensive tubulo-glomerular nephritis. 5. Suprarenal involvement has lately been noted as a cause of death several times by French observers. 6. Acute hæmorrhagic pancreatitis may be set up. 7. Rupture of the spleen. In the course of this complication the patient has a most severe abdominal attack, the spleen swells, the capsule becomes thinned and ruptures spontaneously or after some slight injury, and death is due to hæmorrhage. These seven classes can generally be distinguished after death, but sometimes with difficulty only, and they occur, not only in acute first attacks, but in the flaring-up of chronic cases. With regard to malarial cachexia, Dr. Seyfarth states that death is very often due to some condition introduced subsequently, such as infectious diseases or scurvy, beri-beri, and the like, but many cases with the severest anæmia and bone-marrow change die of portal thrombosis. A. Bignami and others also mention a malarial-waxy condition which may cause death. It must be kept in mind that not only in malarial cachexia but also in both acute and chronic malaria secondary infections may be the cause of death. Of these secondary infections the author found the most frequent to be broncho-pneumonia, dysentery, especially bacillary dysentery, strepto- or staphylo-coccal septicæmias, and ulcerations, in particular gangrenous ulcerations. Further ordinary attacks of infectious disease are apt to reawaken chronic malaria, and in malarial districts appearances characteristic of malaria are sure to be found in the body of a patient dead of any disease whatever.

THORACOTOMY OR ASPIRATION.

THE serious mortality following operative treatment of empyema, especially in small children, has been a matter of concern to the medical profession for many years. Last year a considerable amount of light was thrown upon the nature of this mortality by H. C. Cameron and A. A. Osman (THE LANCET, i., 1923), who showed that the cases which were treated by rib resection during the course of the pneumonia usually died, while those treated after resolution was complete usually recovered. At a recent meeting of the Liverpool Medical Institution, reported elsewhere in this issue, Mr. Thelwall Thomas emphasised the necessity in severe cases of empyema complicated with pneumonia of repeated aspiration before resorting to incision; and in *La Vie Médicale* of Oct. 23rd, 1924, Dr. Ribadeau-Dumas and Prof. Rocher deal with this question. Their opinion with regard to prognosis coincides entirely with that of the authors quoted above, and they deprecate any form of thoracotomy in cases of parapneumonic empyema, or of children in the first two years of life, preferring the removal of pus by aspiration or siphon drainage until resolution in the lungs is complete. Their views on the treatment of metapneumonic empyemata are more conservative than those of the majority in this country; their principal object is to avoid the entrance of air into the thorax, and they consider that intercostal thoracotomy with a minimal opening into the pleura usually yields as good a result as resection of rib, and is the method of choice in most acute cases. This conservative tendency will not be found in the article in which Dr. Carl Hedblom [1] reviews the treatment of non-tuberculous pulmonary suppuration. He considers that the treatment of pulmonary abscess depends mainly on the localisation; if the abscess is central, bronchoscopic lavage or artificial pneumothorax may be of benefit, but the central abscesses are likely to heal spontaneously. Peripheral abscesses should be drained unless the patient is definitely improving under medical treatment. Having shut off the pleural cavity by a two-stage operation, or by suture, he locates the abscess by means of the exploring needle, and burns a tract to the abscess, with the needle still in place, leaving a wide open drainage of the cavity. Should exploration fail to localise the abscess, a tract is burnt to the suspected area and packed, since the abscess may burst into this tract later. For a long-standing chronic abscess he recommends cautery lobectomy as affording the best chance of cure, but admits the danger of fatal hæmorrhage. In discussing the treatment of bronchiectasis he states that in localised forms drainage causes very marked improvement as long as it is kept open. For unilateral diffuse cases he performs an extrapleural thoracoplasty in five stages, accompanied by alcohol injection of the intercostal nerves. Pneumothorax collapse may be used as a test of suitability, if it is followed by relief of symptoms the extrapleural operation is indicated.

[1] Minnesota Medicine, vol. vii., No. 10.

NEGLECTED CORNERS OF OTOLOGY.

Dr. J. Kerr Love, who presided at the Otological Section of the Royal Society of Medicine on Nov. 8th, made the striking statement that there had been scarcely any appreciable advance during the last 50 years in the cure of deafness—he was not speaking of surgical treatment. It was only recently that orthodox medicine was making any effort to prevent deafness, and in consequence the management of cases of chronic deafness had been left largely in the hands of the empiricist and the quack. Much deafness was due to infectious disease of the throat, and the more thorough treatment of enlarged tonsils and adenoids was already limiting the otologist's activities. One neglected corner of the otological field was certainly in the hospitals for infectious disease, for otologists were rarely appointed to their staffs. Speaking for Glasgow, he was not aware of any aural specialist attached to the fever hospitals with several thousand beds. Many fever patients still had discharge from ear or nose when they left the hospital. Another neglected corner Dr. Love finds in institutions for the deaf, which may have on their staff a physician, an ophthalmologist, an odontologist, a dermatologist, but no otologist. Deaf-mutes with middle-ear suppuration may require adenectomy to restore their health, although it cannot restore their hearing. Such institutions possess a store of clinical material which may be used for elucidating problems such as the influence of syphilis on congenital deafness. Dr. Love does not go as far as French authorities, who ascribe 25 per cent. of cases of congenital deafness to inherited syphilis. He places the upper limit at 10 per cent., but strongly holds that the effect of syphilis on the ear may extend not merely to the third generation, but beyond it. He does not regard a negative Wassermann as disproving the syphilitic origin in any particular case. Apart from this, the otologists, Dr. Love thinks, have not made the most of their opportunity in guiding the public in the matter of aids to hearing. He hoped some physicist would be found to make practical use of the fact that many subjects of middle-ear disease hear best in a noise. Unfortunately, many children did not respond to electrical aids; in a test which he had instituted at the hands of good teachers with abundant opportunity, out of 60 children tested only four definitely benefited. Dr. Love's review covered the whole period of his own recollection and deserves wide attention.

RICHARD OWEN AT THE HUNTERIAN MUSEUM.

IN his Vicary Lecture, delivered at the Royal College of Surgeons of England on Nov. 12th, Sir Arthur Keith throws interesting light on the almost constant conflict between Richard Owen and the Museum Committee during his tenure of the office of conservator. Hunter had pursued his studies and built up the museum to throw light on man—on the nature of his disorders and diseases and on the manner in which the functions and actions of his body were

accomplished. He knew well that the collections he had assembled might be employed for two other purposes. His dissections might be used, not for the study of function but for the classification of all living things into natural groups and orders. He knew that his great collections of fossils opened vistas into past ages of the world. Hunter turned his back on such aims, but two years after his death Cuvier set to work. He built up anatomical collections just for the two purposes which Hunter refused to entertain, and by his genius and industry enthralled the world by his discoveries during the first three decades of the nineteenth century. At first Owen's sympathies were with Hunter's original aims, but they soon became dissipated under the brilliance of Cuvier's sun. When Cuvier visited the Hunterian museum in 1830, a few months before his death, he fired young Owen with his aims and zeal. In Owen's time the Natural History Departments of the British Museum were in abeyance, and Owen set out to make the Hunterian museum supply a national deficiency. He intended it to be the home for the classification of all forms of animal life, for the separation of the animal kingdom into natural groups according to structure. More particularly he intended that the museum should become the headquarters for the interpretation of past worlds of life. If, Sir Arthur Keith concluded, we are to understand the continual friction recorded throughout Owen's time, it is necessary to keep in mind the clash of ideals—the ideal the Museum Committee had in view and the ideal which Owen nursed as if it were his religion. The committee was for ever trying to get Owen to go its way, and he was for ever breaking off to follow his own path. It was in Cuvier's world that Owen lived, not John Hunter's. To study structure and function as a service to medicine we must, in Sir Arthur Keith's words, "go back to Hunter."

THE fifth British Congress of Obstetrics and Gynæcology will be held in London at the Royal Society of Medicine from April 22nd to 24th, 1925.

THE next session of the General Medical Council will commence at 2 P.M. on Tuesday, Nov. 25th, when Sir Donald MacAlister, the President, will take the chair and give an address. The Council will continue to sit from day to day until the termination of their business.

THE King has approved of the award this year by the President and Council of the Royal Society of a Royal Medal to Dr. H. H. Dale, F.R.S., for his researches in pharmacology and physiology. The Copley medal has been awarded to Sir E. A. Sharpey Schafer, F.R.S., for his work on physiology and histology. The Darwin medal has been awarded to Prof. T. M. Morgan, Foreign Member, R.S., for his work in zoology, especially his researches on heredity and cytology.

THE death of Dr. John Tatham at the advanced age of 81 years removes a great figure in medical statistics, for he was during the active years of his life Superintendent of Statistics at the General Register Office, and his Supplementary Reports on the Mortality of England and Wales and on English Occupational Mortality are works of classical importance. Dr. Tatham's apprenticeship to public health work was served at Salford and Manchester in the 'seventies and 'eighties of last century. A biographical notice will appear in a later issue.

HERITAGE CRAFT SCHOOLS.—The new wards and operating theatre have now been equipped at the Heritage Craft Schools at Chailey, in order that the necessary orthopædic work amongst the cripple boys and girls in the institution may be carried out on the spot and thus secure the continuity of treatment and education which has proved of such value in these cases.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCVI.

THE TREATMENT OF ACUTE OTITIS MEDIA.

ACUTE otitis media, when attacked promptly and with particular care in the after-treatment, is comparatively easy to deal with, and a complete cure with perfect hearing, although it cannot be promised, is a reasonable probability. On the other hand, chronic suppurative otitis media is intractable, and the prospect of obtaining even a healed membrana tympani is doubtful; moreover, such healing, if obtained, rarely restores good hearing. Meanwhile, the patient suffers a continuous deterioration in general health, besides incurring a constant risk of dangerous complications. Obviously, no trouble is wasted if it may prevent the acute merging into the chronic condition.

Prophylaxis.

The liability of everyone at all times to an ascending Eustachian infection is greatly increased by sepsis in the nose or throat, or their annexa. And the timely correction of pyorrhœa, nasal turbinal hypertrophies, or nasal accessory sinusitis greatly reduces the actuarial probability of such infection. In children the most frequent predisposing cause is found in septic tonsils and adenoids, especially the latter, which, in suitable cases, may be removed without interference with the tonsils. In brief, prophylaxis comprises the toilet of the mouth, nose, and post-nasal space. But supposing that despite, or in the absence of, these precautions a patient arrives suffering from what seems to be acute otitis media, it is to be remembered that an intolerable boring pain, which has no respite, may be caused by other conditions than acute otitis media, of which it is so characteristic. I refer chiefly to meatal furunculosis and to old impacted wax which has suddenly swelled with moisture; either of these may coexist with an acute middle-ear infection. Again, with almost identical physical signs in both drum-heads, the pain on one side may be so great that no complaint at all is made of pain in the other ear; thus, in order to avoid a second and superfluous anæsthetic, both drums should be inspected.

Having decided that the condition is, in fact, an effusion into the middle ear, the further point at issue is whether this effusion is catarrhal or purulent; that is, whether the drum calls for an immediate incision or not. In those cases where the physical signs indicate only a catarrhal condition, and pending arrangements for operation in the suppurative cases with which this article chiefly deals, an expectant attitude should be adopted.

Expectant Treatment.—Local analgesics give great comfort. It is usual to employ glyc. ac. carbol. 1 in 10 to 1 in 5; or "Ovoids" containing opium or cocaine, made by Messrs. Savory and Moore. A cholagogic purge is essential, preferably calomel.

Operation.

Pus, once diagnosed—in a stereotyped case by a loss of landmarks in an opaque membrane, which, over a part or the whole of its extent, shows a bulge of which the colour varies from yellow, through salmon-pink, to an angry red—must be released. Myringotomy may be performed under a prolonged nitrous oxide anæsthesia, or gas and oxygen, or a light ether narcosis. The incision may reveal only a bead of pus, and this may be obscured by blood, although the hæmorrhage is insignificant. It is imperative to operate, because, first, the middle layer of the drum-head consists of radial and circular elastic

fibres, and after a clean incision fewer of these (especially the radial) are severed than if the membrane be allowed to burst; in the former case the opening is less ragged, so that rapid and complete healing is more probable. A second reason for early incision is that before rupture occurs the infection may spread not only to the mastoid, but to the meninges or brain. At the conclusion of the brief anæsthesia, and as soon as the ear has been covered up, the patient, if young, should be digitally examined for adenoids, if this examination has not been previously made. If any are found, their removal should be postponed, for the creation of a raw post-nasal area at this time might spread or maintain an infection, so that a unilateral case might become bilateral, and even in a case already bilateral healing would be invalidated.

After-treatment.

Immediate After-treatment.—Meticulous care in this, including a strict antiseptic ritual for the first ten days, will be well repaid. From one of the various firms who cater for surgical equipment a tin containing six packets of aural dressings should be obtained; also, if the patient be a restless child, a "mastoid cap," which is less liable to displacement than is an ordinary bandage. Circumferential hair should be cut sufficiently short to prevent any stray hair from wandering into the concha. At the close of the operation a wick, about five inches long, of plain sterilised woven-edged ribbon gauze, not more than three-quarters of an inch wide, should be inserted into the meatus for half an inch; the surplus inches of gauze are loosely folded into the concha. Subsequently, the wick is changed every 24 hours; and each day before replacing the wick the meatus is gently wiped out with a piece of similar ribbon gauze made just moist with lot. ac. borac. 75 parts, spir. vin. rectif. 25 parts, and two or three drops to the ounce of tinct. iodi. After two or three days there is a tolerance to the warm sensation produced by the alcohol, which may be gradually strengthened up to 40 per cent. These manœuvres are facilitated by gently pulling the pinna backwards, thereby straightening out the curve in the cartilaginous meatus and rendering access more direct. Quite possibly no pus will ever be seen, even on the first dressing; the drum-head heals by first intention, and is intact in a fortnight or less. The friable healed area would be easily reopened by slight trauma or sepsis, and it is wise to keep a very light wick in the ear for another fortnight. After three months it may be difficult to find a scar. It is not desirable to syringe the ear at this stage.

Remote after-treatment differs according to the course of the case: whether (*a*) favourable (fortunately common) as heretofore outlined, or (*b*) unfavourable.

(*a*) *Favourable Cases.*—An alkaline nasal douche, in all patients old enough to use it, should be instituted as soon as acute symptoms cease, and continued twice daily for six weeks. In small or intolerant children a spray should be substituted. After two months the membrane is strongly healed, and then, but not sooner, if slight deafness or tinnitus remain, the mobility of the drum-head should be simultaneously examined and encouraged by using a Siegle's speculum, which provides a feeble form of air-massage. More vigorous movement may be required, as supplied by a pump attached to an electrical motor of the Pantostat type. And, to complete the cure, a few inflations with the Eustachian catheter may be most helpful of all. Any adenoids should be removed, and, if septic, the tonsils also by dissection, as a precaution against recurrence.

(*b*) *Unfavourable Cases.*—Suppose that during the first few days pus, instead of being absent, persists or even increases, and at the end of a week there is still otorrhœa, with slight irregular pyrexia and perhaps trivial aching discomfort, it is clear that healing by first intention has failed, and, as in the case of any other wound in like condition, dry dressings no longer meet the case. Recourse must now be had to syringing, twice or thrice daily, but at first with only the most bland unirritating fluids. Warm lot. ac. borac. is the best, to which, as in swabbing out the favourable cases, alcohol may be gradually added up to 25 per cent. As useful alternatives warm aqueous solution of resorcin, 4 per cent., or of chinosol, 1 in 1000, may be tried. Under this régime the membrane may heal in another two weeks. If not, if the suppuration still continues, and the pus instead of becoming steadily thinner and more scanty remains yellow and so thick that its inspissation sometimes threatens to block its own egress, a stronger antiseptic is called for. An effective lotion is warm mercuric potassium iodide, 1 in 4000. There are various useful lotions and preparations for the treatment of obstinate otorrhœa, but their use, as also such methods as ionisation, belongs rather to the subject of chronic otitis media. If after using a lotion for three more weeks—that is six weeks from the onset of the infection—there is still no sign of healing, the possibility of chronicity must be faced. And here, as regards treatment, we are at the parting of the ways; two courses are available.

The first possible course is to temporise by using a vigorous cleansing agent such as hydrogen peroxide. This, despite its valuable properties, carries about, by the mere mechanical movements of its bubbles, any and everything which they loosen—including infected debris containing micro-organisms which have escaped destruction. In the early days, therefore, the infection may be spread by its use. Later, when a barrier of granulation tissue has shut off surrounding areas, hydrogen peroxide is a good friend. From the point of view of obtaining healing and good function, its use is an admission of probable defeat, implying that the case is already on the border-line of chronic suppurative otitis media, and as such passes out of the province of these notes. In some cases it is necessary thus to temporise with hydrogen peroxide, but in others there is an alternative.

The second course is to face the issue and apply the ordinary surgical principle of counter-drainage. In obstinate cases of recent acute suppurative disease counter-drainage by a tube placed in the antrum after a simple mastoidotomy is often the best course. The antral cavity, of course, becomes obliterated by granulation tissue which gradually becomes fibrous, and there is no consequent functional disability. The usual outcome is that an acute condition which threatened to become chronic rapidly ceases, with perfect healing, and—after perhaps a few subsequent Eustachian inflations—excellent function results.

If this more active method is to be pursued, it must not be long delayed. It should be considered in any case which obstinately persists for three weeks, and undertaken before the lapse of eight weeks.

H. LAWSON WHALE, M.D. Lond., F.R.C.S. Eng.,
Otologist to the Hampstead General and to the London Temperance Hospitals.

ROYAL INSTITUTION.—Concerning the Habits of Insects is the subject of the ninety-ninth course of Christmas lectures to be delivered at the Royal Institution, 21, Albemarle-street, London, W. 1, this year by Mr. F. Balfour Browne, lecturer in entomology at the University of Cambridge. The first lecture is on Dec. 27th on Insect Collecting and What it Leads to, followed by the Habits of Bees and Wasps (Dec. 30th), Habits of Caterpillars (Jan. 1st), Habits of the Dragon-fly (Jan. 3rd), Habits of the Water-beetle (Jan. 6th), and the Habits of Insects and the Work of Man (Jan. 8th). The lecture hour is 3 P.M.

COLLEGE OF PHYSICIANS OF PHILADELPHIA: ALVARENGA PRIZE.—The Alvarenga Prize for 1924 has been awarded to Dr. Gordon Cameron, Victoria, Australia, for his essay entitled Pancreatic Anomalies: their Morphology, Pathology, and Clinical History. The next award of the Alvarenga Prize, amounting to about $300, will be made on July 14th, 1925. Essays intended for competition may be upon any subject in medicine, but cannot have been published. The essay should represent an addition to the knowledge and understanding of the subject based either upon original or literary research. Further particulars may be obtained from the secretary, Mr. John H. Girvin, 19, South 22nd Street, Philadelphia, Pa., U.S.A.

Special Articles.

MODERN MEDICINE IN EGYPT.

EGYPT is a land rich in historical associations with the science and art of medicine. Even before the time of Moses, one of the earliest of public health workers, whose account of what was known in his day of midwives and general hygiene is to be found in the Pentateuch, there were many deities who were supposed to preside over the cure of disease. Isis, Seraphis, Chonsu, and Thoth are amongst those who were worshipped as medical divinities. Later, with the birth of Hippocrates (460 B.C.) "medicine was separated from philosophy" [1] and treated as a more exact science in Egypt, and Celsus gives much information on the school of anatomy at Alexandria, which remained famous up till A.D. 300. Galen studied medicine in Alexandria about A.D. 150, and even when he settled in Rome he constantly urged students to visit that city, which was then the centre of the intellectual world. The first hospital in Egypt is said to have been built about A.D. 875. The Muristan was a remarkable institution established in Cairo in 1286, and even in recent times its ruins have been used as an eye dispensary. The Kasr-el-Ainy palace was turned into a hospital in 1799 and rebuilt in 1812; later it became the earliest government medical school in Egypt. With the occupation of that country by England a completely new school of medicine was established in it which still continues to be the centre of medical education and research in that country. Under imperial guidance public health work in Egypt has striven with manifold success "to combat a variety of diseases and solve a series of problems possibly without a parallel in any other part of the world, for Egypt shares in a large measure the pathology of both temperate and tropical lands." [2] With the withdrawal to a marked extent of this imperial guidance it seems an opportune moment for considering certain aspects of modern medicine in Egypt which have from time to time formed the subjects of papers contributed to these pages.

Anthelmintic Work.

During 1923 about 50,000 new patients attended the six special annexes which have been set up in connexion with the Kasr-el-Ainy Hospital, Cairo, and the hospitals in five other large towns.[3] Each of these annexes is a complete unit consisting of waiting-rooms, latrines, treatment rooms, clinical laboratory, and rest-shelters. The patients, of whom 70 per cent. are men, are examined from a general point of view and specimens of dejecta are obtained, and in this way all positive cases suitable for treatment are easily selected. Of these patients the great majority are infected with bilharziasis or ankylostomiasis. In the bilharzial cases antimony is used with marked success. Intravenous injections of antimony sodium tartrate are given, this treatment being carefully controlled by routine microscopical examination of the excreta, and no case is considered cured until living ova permanently disappear. If the patients attend regularly for injections, such a result is usually obtained after a course of 12 injections spread over four weeks, and only about 2 to 4 per cent. require a second course to ensure a cure. With careful selection of cases and with proper medical supervision during the period immediately following the injections, when the patients rest in the shelters, the treatment adopted seems to be remarkably free from danger. Emetine has also been used in the treatment of this disease, but it is too expensive a drug for routine purposes. In some districts intestinal bilharziasis is particularly prevalent, and the diffuse papillomatosis sometimes occurring in the rectum in this disease has been successfully treated in certain cases by complete excision of the affected mucous membrane. The constant tenesmus associated with the passage of blood and mucus condemns the patient to such a state of misery that even if this operation is attended by untoward results, such as stricture, which occurred in one of the eight cases recently reported,[4] the patient's condition is infinitely to be preferred to his previous state. A tube of as long as 17 inches has been successfully removed in one case and the operation offers a good chance of cure of this most distressing condition.

Ankylostoma cases form about 40 per cent. of the patients treated at the anthelmintic centres. Laboratory diagnosis is made as a routine despite the fact that severe anæmia is almost always due to ankylostomiasis in Egypt. The treatment adopted is the administration of carbon tetrachloride or oil of chenopodium, and this is continued until ova are no longer found in the excreta. As a rule, two treatments with the former or three with the latter drug prove effective. The anæmia resulting from this disease has also to be treated, and in severe cases due to this parasite or to bilharziasis blood transfusion is sometimes necessary. In connexion with this operation, which is also employed for primary anæmia and surgical shock and has been suggested for use in deficiency diseases such as pellagra, diabetes, and rickets, certain interesting points arise with reference to the compatibility of the bloods of the various races in Egypt. "There appears to be perfect mutual agreement between the transfused blood of Negro, Negro-Arab, Egyptian, and Levantine races, as well as that of fair-haired Turks or Circassians." [5] The proportion of Group IV. donors is low as compared with Europe, and it is believed that the parasitic diseases occurring in Egypt may be responsible for a modified positive Wassermann reaction in certain cases, making the selection of suitable donors somewhat complicated.

Rabies.

To the Kasr-el-Ainy Hospital in Cairo are brought about 2000 cases of animal bite a year and about 15 of these cases develop hydrophobia, consequently affording a remarkable opportunity for the study of this disease.[6] Rabies is endemic among the dogs, jackals, and desert wolves in Egypt, and while the incidence of this disease among camels is low, these animals produce the worst bites and constantly figure in the statistics. The latent period of the disease appears to be, on the whole, shorter than has been reported from other parts of the world, and while it is believed that less than 1 per cent. of cases bitten by all animals develop rabies the difficulty of establishing statistics is great, as the animal often escapes entirely or is shot. The disease can generally be diagnosed with certainty from the clinical features, but inoculation of filtered human saliva into the brain of a rabbit is usually undertaken as a confirmatory test. Treatment consists of cauterising the wound, followed by the usual inoculation of the dried cords of rabbits. Should violent symptoms arise they can often be controlled by hyoscine and morphine, while injections of novarsenobenzol are sometimes employed. Pathological investigations into the disease have been disappointing, Negri bodies being found in only 20 per cent. of undoubted cases.

Goitre.

Egypt appears to offer a very interesting field for the investigation of the ætiology of goitre. While adenomatous goitre is not uncommon, "disorders of secretion resulting, on the one hand, in hyperthyroidism or exophthalmic goitre and, on the other, in myxœdema or cretinism are almost unknown." [7] This refers more particularly to the fellaheen, for amongst Egyptians of wealth and leisure

[1] Sandwith: The Medical Diseases of Egypt, 1905.
[2] Balfour and Scott: Health Problems of the Empire, 1924.
[3] H. B. Day: THE LANCET, 1924, i., 435.
[4] R. V. Dolbey and I. Fahmy: THE LANCET, 1924, i., 487.
[5] R. V. Dolbey and A. W. Mooro: THE LANCET, 1924, ii., 547.
[6] R. V. Dolbey and Katib: THE LANCET, 1924, i., 538.
[7] R. V. Dolbey and Omar: THE LANCET, 1924, ii., 549.

these latter diseases are found much more frequently. The conclusion has been reached that as far as adenomatous goitre is concerned it is almost entirely due to a polluted water-supply in non-riparian villages. With regard to the absence of disorders of secretion of the thyroid gland among the labouring classes of Egypt, a very interesting field for speculation is thrown open. Whether it is something to do with the diet, the rarity of nervous diseases, the free uncomplicated life which is led, or due to an inherent difference in the endocrine balance of the Egyptians remains a fascinating and open question.

Hospital Accommodation.

While there is about one hospital bed to 800 inhabitants in Cairo, the proportion reaches about 1 to 15,000 in the provinces, and the pressing need for extended hospital accommodation is evident. This need of the provinces for additional hospitals must not, however, be allowed to overshadow completely the fact that if Cairo is to maintain its position as a great centre of clinical instruction a new hospital is necessary there, and it is a matter for regret that the projected scheme for the rebuilding of the Kasr-el-Ainy Hospital in Cairo is at present at a standstill. As far as special hospitals are concerned, Egypt seems to be in a particularly happy position with regard to ophthalmic work. Thanks to generous private donations and enlightened State aid, an ophthalmic system has been built up consisting of five completely-equipped travelling hospitals, 16 permanent hospitals, and two ophthalmic departments attached to general hospitals. Through the devoted labours of a British administrator a highly efficient staff has been collected, and with the clinical aspect kept strongly in the foregound much of the administrative work has been successfully relegated to clerical subordinates.

The Future.

The future of medicine in Egypt is a matter for speculation. With a host of historical associations and the products of modern public health work under British direction, time will show whether the Egyptians will be able to cope more or less unaided with complicated hygienic conditions and maintain the comparatively high reputation which the Cairo School of Medicine at present enjoys. It possesses unrivalled opportunities, as recent papers published in our columns amply demonstrate, and it has a rich and interesting clinical field. It requires judicious development and a modern hospital with a wise and temperate control, free from political passion and racial bias. Given these it should become the medical Mecca of the Near East. On the other hand, ineffective control, political interference, or a policy of *laissez-faire* will almost certainly lead to decadence and eventual disaster.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Universities Election.

AT the time of writing great political interest is being taken in the contest for the three seats representing the four Scottish Universities, the only constituency in the country not yet decided. At first sight the process of electing the candidates seems slow, but considerable difficulty is being experienced by the Registrar through members of the General Council of each University failing to keep in touch with their University or to register change of address. For this reason a great many letters enclosing voting forms have been returned by the postal authorities. There appears to be a misunderstanding in some cases that the General Council of any University is the same body as the General Medical Council, and that the compulsory notification of change of address to the latter is sufficient. The two bodies are entirely distinct and any change of address should be sent to each Council; in this way much inconvenience and disappointment may be avoided. In ordinary circumstances little more than a passing interest is taken by graduates in reports circulated by the University Council, and their non-arrival is not missed. At elections members are naturally annoyed when voting papers do not reach them, completely losing sight of the fact that in the past some change of address has not been sent in. This is especially the case at present when the University seats have been for so long uncontested, and therefore no necessity has arisen for an election.

Aberdeen Medico-Chirurgical Society: Tumours of the Breast.

At the opening meeting for the winter session of this Society Dr. G. M. Duncan, the President, delivered his presidential address on Tumours of the Breast. Dr. Duncan's experience of such cases extended to several hundreds, and after some preliminary remarks upon the importance and difficulties of histo-pathological examination, he dealt first with the carcinomas. Points of interest in these tumours were the rarity of their occurrence in the male breast (in the series only six were in the male); the difficulties of diagnosis in the early stages; and the extraordinary high percentage of carcinoma in all breast tumours. Dr. Duncan described the method of rapid diagnosis by sections at operation, and thought that this method might be more extensively used, provided that the pathologist had the necessary experience of the technique and the appearance of such sections. Illustrative cases were quoted where the method had been of considerable value. The different varieties of breast cancer were then described, and special reference made to the difficulties of diagnosing cancer commencing in a mastitic breast, and of distinguishing malignant types of papilliferous cyst-adenoma. From his experience of cancer cases Dr. Duncan drew certain general conclusions: (1) Cancer of the breast in young women tended to be much more malignant than in those of greater age. (2) Cancer associated with inflammatory conditions of the breast often tended to be peculiarly malignant. (3) Speaking generally, he held that the more cellular the character of the growth the more malignant it was. (4) It was unwise to draw any definite conclusion merely from the size of a growth as to its malignancy both local and from the point of view of the occurrence of metastatic deposits. Cases were quoted showing that a large growth might be removed with complete success, while a small growth might be removed with rapid local recurrence or development of metastatic deposits. Emphasis was laid on the occasional occurrence of metastatic growths producing definite physical signs, where the primary tumour in the breast was so small as to require the most careful examination for its detection. Dr. Duncan then described other types of breast tumour, for example, fibro-adenoma, sarcoma (very rare), inflammatory conditions, syphilis, and tubercle. He suggested that some of the vague fibrotic conditions found in the breast might, in certain instances, be of syphilitic origin.

Edinburgh: Jubilee of the Longmore Institution.

This hospital for incurables, which is under the management of the Royal Edinburgh Hospital for Incurables, has now just celebrated its jubilee. Originally intended to accommodate 22 beds, there are now 160, while an auxiliary institution at Liberton has more than 50 beds, thereby multiplying the original number of beds by nearly ten. For this much credit is due to the management, as in the first 20 years of the existence of the hospital the total deficiency was under £2000, while the total sum drawn from capital to meet the deficiency on annual income, over £93,000, was made up from legacies and donations. Sir Henry Cook, the chairman of the board of management, who presided on Nov. 7th at the fiftieth annual meeting of the board, referred to the satisfactory progress that had been made, and expressed the hope that the voluntary effort of our great healing institutions would never be superseded by a paid management. Sir Leslie Mackenzie, a member of the Scottish

Board of Health, said that in the last full year the number under treatment in the two hospitals was 345, and that in the past 25 years more than 35,000 cases had been admitted. Sir Harold J. Stiles moved a vote of thanks to the managers. Referring to the Liberton Hospital, he said that when he saw the outside huts he realised how it was that some of the cases of tuberculous diseases of the spine which were sent into the hospital incurable had gone out cured.

Medico-Chirurgical Society of Edinburgh.

The opening meeting of this Society took place on Nov. 5th. The meeting opened with the election of new office-bearers who, together with those already in office, are:—President: Sir David Wallace. Vice-Presidents: Dr. George Mackay, Dr. Robert Thin, Dr. William Guy. Councillors: Sir Robert Philip, Dr. Chalmers Watson, Dr. John Orr, Dr. J. A. H. Duncan, Dr. A. H. H. Sinclair, Dr. W. T. Ritchie, Dr. J. S. Fraser, Mr. J. M. Graham. Treasurer: Dr. W. Macrae Taylor. Secretaries: Mr. W. J. Stewart, Dr. John Eason. Editor of Transactions: Dr. Fergus Hewart. The following new members were elected: Dr. H. R. Dodson, Dr. J. Donald Gunn, Dr. James Irvine, Dr. Alexandra Lothian, Prof. T. J. Mackie, Dr. W. N. Boog Watson, and Dr. A. R. Wightman. During the session eight ordinary meetings are arranged, commencing at 8 P.M. The dates of the remaining seven are: Dec. 3rd, Jan. 21st, Feb. 4th, March 4th, May 6th, June 3rd, July 1st. In addition there will be two clinical meetings in the Medical Out-patient Department of the Royal Infirmary on Nov. 19th and May 13th at 5 P.M.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Prosecution for Soliciting a Bribe.

AN important prosecution took place in the Central Criminal Court, Dublin, last week, when two members of the late Co. Roscommon Board of Health, recently dissolved, were found guilty of soliciting fees or rewards to induce them to vote for the election of a particular candidate as medical officer of a dispensary district in the county, as I wrote in my letter of Oct. 18th. Prosecuting in the first case, that of John Corrigan, Mr. Carrigan, K.C., said that the case was an important one, involving a charge of attempted corruption to secure the vote of a member of the Board. The prosecution was brought under the Public Bodies Corrupt Practices Act. The offence was a misdemeanour, and one consequence of conviction would be to deprive the man convicted of the right to vote for seven years. It was not necessary that any money should pass. The offence was in corruptly soliciting for himself or another a fee or reward to bring about such an election. Evidence was given by friends of Dr. T. P. McDonnell that when they asked Corrigan to vote for Dr. McDonnell he replied, that "none of the candidates was a brother of his, and he would vote for the man who paid him most." In the other case, Dr. McDonnell swore that Thomas Moran had told him he could have his vote for £50, or that for £400 or £500 he could secure enough votes to make sure of the election. In both cases, after a verdict of guilty, the prisoners were put back for sentence. For years past rumours have been current that elections by local authorities are influenced not merely by undue family and political connexions, but are subject to bribery and corruption. This is the first occasion on which anyone has been prosecuted on such a charge. Immediately after the election Dr. McDonnell objected to it on the ground of bribery and demanded a sworn inquiry by the Ministry of Local Government and Public Health. The inquiry was promptly held, and enough evidence was forthcoming to justify the criminal prosecution, which has now been brought to a successful issue. The activity of the Ministry of Local Government in investigating the charge and of the criminal authorities in ordering a prosecution is highly satisfactory. Such action will, it is hoped, teach a lesson to rogues in other parts of the country who may be prostituting the interests of the public and of the sick poor to their own profit.

Physical Training in Schools.

On the invitation of the Co. Dublin Branch of the National Athletic and Cycling Association of Ireland, a conference was held last week in the Royal College of Surgeons to discuss the steps that should be taken to introduce a system of physical training into the schools of Ireland. Mr. P. Lynch, K.C., presided, and the conference was attended by representatives of the Irish Medical Association and a number of persons interested in health and education. It was stated that there was already a fair system of physical training in the secondary schools, but none in the primary schools. The importance of physical training to improve the health and physique of the race was emphasised. It was pointed out, also, that the time was opportune to press the matter, as a system of medical inspection of school-children was about to be put in force, and the two reforms should go together. After an informative discussion a small committee was elected to study the systems in vogue in other countries, and to press its views on the Ministry of Education.

AMERICAN PUBLIC HEALTH ASSOCIATION.

FIFTY-THIRD ANNUAL MEETING.

(FROM OUR OWN CORRESPONDENT.)

MEMBERS of the American Public Health Association, drawn from all parts of the United States and from Canada, met in Detroit for their Fifty-third Annual Convention from Oct. 20th to 23rd. On the first day, when the addresses of welcome were delivered, over 600 had registered their presence. The President of the Association, Dr. W. H. Park, is recovering from an attack of pleurisy and was not able to be present. His place was taken by Dr. J. W. S. McCullough, of Toronto. After welcoming addresses had been given by the Mayor and Health Commissioner of Detroit, Dr. Thorvald Madsen, Chairman of the Health Section of the League of Nations, described the work of that body. Many members of the large audience were not able to hear Dr. Madsen, who speaks with more of an English than an American accent, and on this account, coupled with the political distrust of the League which is still found amongst Americans, the very careful and wise analysis of the work of the Health Section did not excite the interest which it deserved. Dr. Victor C. Vaughan followed with a lively impromptu address largely in praise of Michigan. He told the audience, among other historic achievements of his fellow citizens, that a member of the health department had discovered in the 'eighties a method of artificial respiration which had been widely taught and practised as the Michigan method. When Sir E. S. Schafer came to Detroit and described his prone pressure method it was found that the two were practically identical. Dr. Vaughan maintains that we should not be satisfied with raising the expectation of life while neglecting the quality of the lives we prolong. It does not profit us to increase the number of youthful degenerates and senile dements. Dr. Vaughan proposes to devote the rest of his life to the improvement of the human stock. These speeches were followed by an informal reception and dancing. The main work of the conference was divided between the various sections which sat more or less contemporaneously—an indication that even the field of public health in this country is not kept free from the vice of specialisation.

PUBLIC HEALTH ADMINISTRATION.

In the Public Health Administration section the Dick tests and immunity results in scarlet fever came under review. Among other subjects discussed, Dr. Adam H. Wright, of the Toronto Department of Health, considered the cause or causes of cancer. He was not hopeful that a specific cause of cancer would be discovered nor that we should be greatly helped by its discovery. The discovery of the tubercle bacillus had not helped greatly in the treatment of consumption.

An impressive study was that reported by Dr. Haven Emerson on

Hospital Morbidity Statistics.

Five years' experience with scarlet fever, diphtheria, and measles covering 16,435 hospital admissions had been analysed to determine if possible a basis for judging of the value of hospital care for these diseases, and to formulate principles of hospital practice which would contribute to (*a*) a lower mortality from the original or primary infection; (*b*) a reduction in the incidence of secondary infections; (*c*) fewer complicating lesions; (*d*) a shorter period of hospital care. It appeared to be true that periods of crowding and shortage in nursing personnel were always accompanied by higher case mortality-rates, together with higher incidence of secondary and complicating infections, this experience suggesting the propriety of establishing minimum floor space per patient and maximum patient ratio per nurse expressed in hours of nurse service per patient per day or week. The death-rate among children under 2 was so high, especially in measles, that it was believed inadvisable to admit such patients to hospital care even when the home conditions were unfavourable, if by visiting nurse service passable conditions could be provided. He said that the frequency with which deaths occurred within the first 48 hours after admission, especially from diphtheria and from pneumonia in measles, indicated the necessity of renewing the education of physicians in the early and adequate use of diphtheria antitoxin in suspicious cases and of declining to permit transfers from other institutions in cases of measles where complicating pneumonia had already set in.

Dr. R. G. Leland, Chief, Division of Hygiene, Ohio Department of Health, Columbus, Ohio, laid down certain essentials in the

Administration of a Public Health Nursing Service.

Public health nursing had, he said, come to occupy a foremost position in combating preventable causes of disease and death. It had shown a marvellous growth both in volume of work and breadth of application; it should be almost entirely educational in character. He held that whatever the community problem and number and type of local groups interested in public health, the nursing service should be directed by the administrator of the official health agency. Compensation for health nursing should be consistent with the type and dignity of the service. The value of a service that prevents sickness and prolongs life is too often unfairly estimated.

The question of generalised versus specialised nursing was taken up again at a public health forum, and gave rise to a lively discussion. Dr. Haven Emerson and Miss Elizabeth Fox declared for generalisation under supervision of specialists, the former laying down the standard of one nurse for every 2000 population as a minimum.

SECTION OF LABORATORIES.

In the Laboratory Section the influence of intensive work on diphtheria carriers upon the diphtheria morbidity was discussed by Dr. W. Royal Stokes, Dr. John F. Hogan, and Mr. C. Leroy Ewing, of the Bureaux of Bacteriology and Communicable Diseases of the Baltimore Health Department.

After reviewing the literature to show the relative prevalence of diphtheria carriers and positive virulence tests in convalescents, non-contacts in the general population, and contacts with cases of diphtheria, the speakers stated that practically all cultures from convalescents were virulent, whereas in a general mixed population, excluding schools and other institutions, 0·09 per cent. show virulent diphtheria cultures. The speakers referred to their study of a large number of initial contacts in Baltimore where they found that about 1 in every 100 harboured virulent diphtheria bacilli as against about 1 in 1000 in the general community. The statistical evidence presented was not very conclusive. They then described the methods pursued in Baltimore and 17 other comparable cities in detecting and isolating initial contact carriers, and in finding additional release carriers when the house was reported for the release of quarantine.

INDUSTRIAL HYGIENE.

The meetings of the Section of Industrial Hygiene were not well attended, and although those who were present showed a lively interest in the proceedings there was evident a sense of dissatisfaction with the present control of occupational disease.

Prof. H. Field Smyth spoke of anthrax as a "continuing and probably increasing hazard" of American industry. Although satisfactory methods were available for the disinfection of hair and wool they were not being carried out properly in the smaller plants where the necessary expert supervision was not available. Speakers representing private organisations or workers' unions gave interesting accounts of their work. It was particularly gratifying to hear of a New York Union that had actually declared a strike to enforce the decisions of its sanitary board. But this represented an unusual development of the health conscience. On the whole, much remains to be done in the way of educating both employers and workers. As regards the former it must be realised that the appeal to self interest has a limit. There comes a point at which the expense of improving sanitary conditions, wages, &c., is greater than the return from increased efficiency. It would be unfortunate to set the limits of industrial hygiene at this point.

Most apparent, and in marked contrast with English conditions, is the need for better Governmental supervision of occupational diseases. Prof. E. Hayhurst, of Ohio State University, laid this need very eloquently before an open session of the convention.

REPORTS.

Some of the committee reports were inconclusive, the reporters evidently fearing that they might make a painstaking survey without its leading to any direct results.

The Committee on Nomenclature had a number of useful definitions to suggest, among them the following:—

Health in the absolute sense.—That quality of life in which the body is sound, the various organs function naturally, and the whole organism responds adequately to its environment (the definition in a relative sense is similar). *Hygiene* is the science and art of the protection and promotion of health.

The Committee on Social Hygiene reports no proof of the rumoured decrease in venereal disease. They find the attitude of the public improved and recommend attempts to control procuration and to enforce quarantine of diseased individuals. The Committee on Cancer suggests that health officers attempt to secure the reporting of cancer morbidity. Free pathological examinations should be available. The periodic health examination is warmly endorsed.

Dr. Henry Vaughan was elected President of the Association for the coming year, and it was decided to hold the 1925 convention at St. Louis.

DONATIONS AND BEQUESTS.—Miss Rosalie Anne Le Geyt, Jersey, left £1050 to the Royal Hospital for Incurables, Putney, and £1000 to the Royal United Kingdom Beneficent Institution.—Miss Clara Walker, of Bideford, Devon, left £1000 to the Bideford and District Hospital.—Mr. Thomas Henry McCormick, of Lancaster, left £500 to Ancoats Hospital, Manchester.

Correspondence.

"Audi alteram partem."

TREATMENT OF MENTAL DISORDER ON A VOLUNTARY BASIS.

To the Editor of THE LANCET.

SIR,—I have read with great interest Dr. Edward Mapother's views on this subject in your issue of Nov. 1st, and I admit, as everyone must do, his high qualifications to maintain the opinions he has expressed. I believe, however, that Dr. Mapother does not entirely do justice to the facilities available in existing mental hospitals, and I ask permission to set forth some of the experiences gained in the treatment of mental diseases on a voluntary basis in an old-fashioned asylum, working under that name.

I should say that this Asylum, which contains 150 beds, cares only for patients of the private class, but many are admitted at low rates of board, and are not distinguishable socially from the rate-aided patients in a county asylum. During the last four years (ending Sept. 30th) 231 patients have been admitted, of whom 111 were certified and 120 (or 51·9 per cent.) entered as voluntary boarders. (No selection of cases has been carried out, and every patient who offered was accepted.) The voluntary admissions represent 103 individuals, of whom one entered six times and 12 entered twice. In addition, seven patients previously certified entered voluntarily and are included in the total voluntary admissions.

The criteria for admission on a voluntary basis are: (1) a recognition on the part of the patient that he is ill (without necessarily any insight or appreciation of the nature and origin of his illness), and (2) willingness to allow himself to be treated, as expressed in a signed application for admission. I am aware that pressure is put upon hesitating and doubtful applicants for admission by their friends and relatives, the threat of certification and compulsory entry being the usual instrument. I am no party to any such pressure. If I see a dubious patient before he has made up his mind, I limit myself to the statements that whether he enters or not is a matter of complete indifference to me, that if he decides to do so I shall do what I can to recover his health and make him comfortable, that if he does not like the place he can go away whenever he likes; lastly, that *under no pretext* will he be detained against his will.

During the same period 112 voluntary patients left the Asylum as follows: recovered, 49; relieved, 42; unimproved, 7; died, 14. The average length of stay of the recovered was $4\frac{3}{5}$ months, and of the relieved $13\frac{2}{3}$ months.

The retention of voluntary patients in an asylum for as long as may be necessary for their safety or advisable for their treatment presents much less difficulty than is generally supposed. No distinctions whatever between voluntary and certified patients are made in treatment and accommodation, and many of the certified are unaware of their inferior status. Classification according to the mental state alone is aimed at, but not at all times perfectly achieved. The building is old and in many respects badly designed, and the different rates of board and the varying degrees of social presentability of the patients add considerably to the difficulties. In a more modern asylum and in other circumstances these considerations would not weigh. Keeping in mind the ever-present dread of depressed patients that they are becoming "insane," and their morbid sensitiveness on this subject, I agree with Dr. Mapother that asylum patients are at least as tolerant of the idiosyncrasies of their fellows and of the phenomena around them as are the patients in an ordinary medical ward, and in my experience the complaints of asylum patients are seldom directed against the behaviour of their neighbours.

During the four years three voluntary patients, to whom I had made no promises, were certified and detained in the Asylum. Two of these (1921) were cases of acute mania, whom I should not now willingly receive as voluntaries (both recovered quickly), and the third (1922) was a mild case of chronic mania who made no effort to leave, but who, in spite of repeated warnings, caused alarm among some of the new patients by asserting that he was illegally imprisoned. (One voluntary was certified in order to be removed to a county asylum.) No patient previously voluntary was received under certificates. Twelve patients persisted in leaving against advice. Of these, eight returned after a short interval and continued treatment, and the other four eventually did well at home. Six of the unimproved patients were removed by their relations for various reasons. One voluntary patient committed suicide during an interval of relaxed observation, and another removed by his friends for financial reasons killed himself the day after his discharge.

Rarely a new patient is admitted directly into a convalescent villa or ward, but, as a rule, all patients enter the hospital wards. From that they are duly passed into one of the four other wards or villas available for each sex, or occasionally for special reasons, if the stay is likely to be short, kept in the hospital ward till discharge. Parole is granted to both classes of patients as a matter of course as soon as justifiable, and one aims at the least possible degree of interference and restriction of liberty. Three of the female and two of the male wards are kept locked, but a number of patients from every ward in the Asylum, including hospitals, enjoy parole. Three of the male wards are in charge of nurses.

In conclusion, I agree with Dr. Mapother that the Maudsley Hospital as at present administered offers an ideal method of dealing with a section of the mentally unfit, and with his opinion that in our time the provision of such hospitals in sufficient numbers is impracticable. I differ from his view that voluntary patients cannot adequately be treated alongside the certified, and I have tried to indicate the evidence on which my conclusion is based. The displacement of "The Asylum," either the institution or the name, is not at present practical politics, and the aim should be to render it as fit an instrument for its varied purposes as may be. Mental patients will not voluntarily enter or remain in any institution in which they have not complete confidence, and the demonstrable fact that such patients are entering and returning to existing asylums in appreciable numbers indicates a change in the attitude of the public which should be fostered and encouraged. The more voluntary patients to pass through an asylum the sooner will any weak points in its methods be eliminated. Pessimistic views expressed by medical men on asylums and their value as hospitals are to be deprecated, because no one can estimate how much good work asylums, unhampered by antiquated laws, may be capable of. Unless and until medical knowledge advances to a point where prognosis becomes a certainty, attempts to separate mental sufferers into "sheep" and "goats" will be cruel and dangerous, and thinly veiled attempts to degrade asylums to the mediæval level of a "house of doom" exclusively populated (and presumably also staffed) by hopeless dements, should be strongly resisted by all those who really know anything about them.—I am, Sir, yours faithfully,

W. D. CHAMBERS, M.D., M.R.C.P.E.,
Physician-Superintendent.
James Murray's Royal Asylum, Perth,
Nov. 8th, 1924.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—I only trouble you with a reply to the letter of Dr. KERR in your issue of Nov. 8th because he is still grievously in error as to his facts. May I therefore explain to him that the name "dental hygienist" is given to a class of unregistered persons,

employed under certain clearly defined limitations, in dental hospitals and public dental clinics in America, in cleaning and polishing the teeth of school-children and in removing superficial deposits of salivary calculus. If Dr. Kerr will read Circular 1279 issued by the Board of Education, he will find that the Minister of Health, after consultation with the Dental Board, has sanctioned "minor dental work" of this nature and that any local educational authority is at liberty to make use of it in school dental clinics.

Dentists, knowing something of the delicacy of the tissues involved and the possibility of injury to the periodontal membrane through the weakening or destruction of the natural defences in the "gingival trough," do not look with favour on the widespread application of these methods. They believe they have pointed out to the authorities a more excellent way. The work done by these dental hygienists has no resemblance to that done by "dental dressers" under the scheme of Dr. Barwise, and I readily accede to Dr. Kerr's request for a statement of the reasons why the dental profession is opposed to the employment of dental dressers.

It is claimed that these persons shall be allowed (1) to conduct dental inspections of the mouths of elementary school-children away from the supervision of the dentist with probe and mirror; (2) to extract temporary teeth; (3) to insert simple fillings; and (4) to treat the first permanent molar. My reply to these claims is this:—

1. The school nurse can by a glance into the mouth of a child and by one or two simple questions, ascertain whether there is need for the child to go to the school dentist. "Inspection with probe and mirror" is a very different thing. It implies diagnosis; otherwise it is a waste of time, as the dentist must re-inspect each case before he can decide on the treatment necessary. Surely the claim that no professional man could consent to accept and to work on the diagnosis of an unqualified subordinate will receive sympathy from the members of the medical profession.

2. Extraction of temporary teeth is not necessarily a simple operation. On the contrary, it is frequently a difficult and delicate operation which, if improperly performed, may result in danger to the permanent dentition.

3. The remarks about extractions apply also to "simple" fillings. It is the constant experience of skilled dentists that cavities which appear "simple" develop during treatment into difficult and complicated cases; a partially-trained person would, of course, not appreciate this.

4. The treatment of the first permanent molar. This tooth is regarded by all competent authorities as the most important tooth in the dental arch. Upon its proper treatment the future masticating efficiency of the child may depend, and none but qualified dental surgeons should be allowed to deal with it.

The dental treatment of children is one of the most delicate and difficult departments of dental surgery, and demands high qualities of skill and dexterity. It is difficult to understand why elementary school-children should be abandoned (on the specious plea of economy) to a course of treatment which, were it attempted in the case of any other children in this country, would render the operator liable to prosecution and the dentist who sanctioned the treatment to the discipline of the Dental Board for "infamous conduct in a professional respect." The sacrifice made by the dental profession to obtain prohibition of unregistered practice of dentistry is surely not yet forgotten. That sacrifice was made on the understanding that it was final, and that not again would the conditions that existed prior to the passing of the 1921 Act recur. The creation of large numbers of unregistered persons permitted by law to perform certain operations in dental surgery would almost certainly result in a future claim for their admission to the Dentists Register. That this is no vain fear is shown by the fact that when the short amending Act of 1923, which gave certain privileges with regard to the age-limit to ex-Service men, was in committee in the House of Commons an amendment was brought forward with the object of giving dental dressers access to the prescribed examination and therefore to the register.

These, briefly stated, are the objections taken by the dental profession to the employment in the school dental service of dental dressers as advocated by Dr. Barwise and supported by Dr. Kerr. With the memory of their own escape from the evil of unqualified assistants, is it too much to ask our colleagues of the medical profession to refrain from assisting the imposition on the dental profession of a like evil, one from which they so lately escaped at a great price?—I am, Sir, yours faithfully,

ROBERT LINDSAY,
Dental Secretary.

British Dental Association, Russell-square, W.C.,
Nov. 8th, 1924.

To the Editor of THE LANCET.

SIR,—If sound conclusions are to be reached, discussion must be based upon facts. To ignore these, or to dismiss them as trivialities, is not conducive to that spirit of scientific inquiry which should precede such reforms as may be desirable in the school dental service. It has already been pointed out in your columns by Mr. Pitts and Mr. Lindsay that there is no shortage of dentists at the present day. In so far, therefore, as the case for the Derbyshire Education Authority is based upon an alleged shortage, it has no foundation in fact. To Dr. Kerr this is a triviality.

The school dental service, at present in an elementary stage of its evolution, lacks many things. One of the most pressing wants is the need for skilled nursing assistance. It should be part of the nurse's duty to give instruction in oral hygiene, to inspect the teeth of the children, and to carry out surface cleaning where possible. In Poor-law schools, where practical instruction such as this is given, the result has been that a considerable proportion of Poor-law children have healthy mouths. The percentage is far higher than the percentage in elementary school-children. Similar results have followed the work of the dental hygienists in the United States. Their work consists in surface cleaning; they are not operating assistants and should not be confused with such.

The agitation of the protagonists of the Derbyshire scheme brings the members of the dental profession face to face with a question of principle. This question is: Is it right that dental operations should be performed by unregistered persons? Recent legislation has answered this question in the negative.

I am, Sir, yours faithfully,

H. W. BREESE, M.R.C.S., L.D.S.

Nov. 11th, 1924.

PUBLIC BATHS: A SUGGESTION.

To the Editor of THE LANCET.

SIR,—At the present state of the problem of housing the general community, particularly that section to which the Chamberlain Act applies, it may be questioned whether the space allotted to the bathroom in small houses really fulfils the object for which it was intended. Cleanliness is a postulate of health, but whether a house contains a bath or not is no criterion of the state of cleanliness of the occupants; the first essential is the possession of enough money to provide hot water, and the second is the acquired habit of preferring to be clean rather than dirty. In fact, to make sure that a family is clean there must be (i.) a bath, (ii.) hot water, towels, and soap, and (iii.) the will and desire to make use of them. Everybody who has any experience of the way the poorer classes are housed and their mode of life, knows that vast numbers of baths are used as coal stores, rubbish shutes, cots, &c., in fact, for anything but the purpose for which they were installed. In nearly every case where this is so, the reason for it is the financial one. An appreciable quantity of coal is required to heat eight or nine gallons of water. The anomalous state now exists that new small houses are being erected containing baths and bathrooms which cannot be used owing to the expense, and the removal of the bath would very materially improve the accommodation.

My suggestion is that we should not build bathrooms in small private houses, but enlarge the existing public baths, and encourage public bathing. The only trouble in this case is that people would not use the public baths because it is not the custom in this country, as it is in parts of the continent. Every individual is sensitive about personal cleanliness, and there is a prejudice against many such public institutions.

Obviously the habits of the older generation cannot be changed; but those of the younger can. If, for the school child, a hot bath, free, once a week and in school hours, were made a part of the school curriculum, and insisted upon by the Board of Education, then a habit of bathing would be engendered which would last long after school-days are over. In two or three generations public baths would be as fashionable and customary as they were in Rome two thousand years ago.

Of course, the financial problem, if this suggestion were carried out, would be an intricate one. Actually it must be cheaper to provide public baths which will be used, than to instal a bath in each of the two and a half million houses required, enormous numbers of which will never be used. Even if it turned out to be a financial loss to the State in actual hard cash, the Board of Education might pay 1*d.* per bath for the school-children, and the individual above school-age would pay for himself: and the local authority need not be the loser. A clean-bodied nation with all the improvements in environment which would spontaneously follow, would be a gain to the nation in the greater man-power which would become available, and this would more than off-set the financial loss. The present sick wastage due to minor ailments of the impetigo type is enormous and these might conceivably be abolished altogether.

I am, Sir, yours faithfully,

Southampton, Nov. 8th, 1924. A. G. G. THOMPSON.

GENERAL MEDICAL COUNCIL ELECTION.

To the Editor of THE LANCET.

SIR,—Will you allow me, through your columns, to thank the Registered Medical Practitioners of Scotland for the expression of their confidence shown by my unopposed return to the General Medical Council as their Direct Representative. It shall be my constant endeavour to continue to merit their trust.

I am, Sir, yours faithfully,

Edinburgh, Nov. 8th, 1924. NORMAN WALKER.

HYPERTONIC SALINES IN CEREBRAL TUMOURS.

To the Editor of THE LANCET.

SIR,—I have read with considerable interest the work of Drs. Macbride and Carmichael on the use of hypertonic salines in cerebral tumour.

A false impression might be conveyed by their statement that "we are unable to confirm Cohen's experience as to the duration of the relief. In all our cases the alleviation of the headache did not last more than 36 hours, hence we have repeated the administration of the solution every second day." In my paper I wrote "this period of freedom lasted from 10 hours to two days, but in most cases an intravenous injection every third day kept the patient free from headache."[1] By every "third" day I mean a 48-hour interval between the injections, which, I think, is what Drs. Macbride and Carmichael mean by every "second" day. Whenever necessary I have repeated injections as often as 20-hourly without apparent untoward result. Further extensive experience of the method has confirmed its value.

I am, Sir, yours faithfully,

HENRY COHEN, M.D. Liverp.

University of Liverpool, Department of Biochemistry, Nov. 11th, 1924.

[1] Brit. Med. Jour., March 8th, 1924.

GENERAL MEDICAL COUNCIL: ELECTION OF DIRECT REPRESENTATIVES.

ENGLAND AND WALES.

AN election address has been issued by Dr. H. J. Cardale, Dr. H. F. Devis, Dr. E. A. Gregg, and Dr. G. R. Ward, from the office of the Medical Practitioners' Union (56, Russell-square, London, W.C. 1), to the registered medical practitioners of England and Wales, which runs as follows:—

A Four-Point Programme.

DEAR SIR (OR MADAM),—We, the undersigned, have been nominated as candidates for election as direct representatives for England and Wales on the General Medical Council. We are all in active general and panel practice, and experienced in public work.

The General Medical Council was set up so long ago as 1858, and deals with professional education and discipline. The last eleven years have brought the general practitioner so closely into relationship with State Departments, and have seen so great an increase of public interest in things medical, that neither the old education nor the old conception of discipline are any longer adequate.

Moreover, only six out of the total membership of the General Medical Council are directly elected by the profession. On the present Council only three practitioners out of forty-one are in general practice. There is a growing necessity for increased representation of the general practitioner, more especially as the disciplinary powers of the General Medical Council which are exercised in his case are almost entirely in the hands of men who know little or nothing of his life under modern conditions, his vexations, his trials, and the curtailment of his freedom.

We feel that the scope of education at the present time is almost entirely dictated by those who have no experience of general practice, with the result that it is, in many directions, unsuited for the requirements of general practitioners who form the vast bulk of the profession. The weak points in the education of the future doctor can be most adequately appreciated and their effect most fully realised by those who are themselves engaged in general practice.

We are in favour of a uniform examination for entry to the profession instead of the present varying standards.

As general practitioners of considerable experience anxious to safeguard your interests, and alarmed at the encroachment on your freedom, we ask your support in favour of:

(*a*) Increase of direct representatives;
(*b*) Modification of the scope of medical education to suit the requirements of the general practitioner;
(*c*) Uniform standard of examination;
(*d*) A wider range of disciplinary powers.

H. J. CARDALE,
Vice-President, Medical Practitioners' Union; Chairman, London Panel Committee; Member, Insurance Acts Committee, British Medical Association; Member, London Insurance Committee, &c.

H. F. DEVIS,
Past-President, Medical Practitioners' Union; Secretary, Bristol Panel Committee; Member, Bristol Insurance Committee, &c.

E. A. GREGG,
President, Medical Practitioners' Union; Member, Insurance Acts Committee, British Medical Association; Vice-Chairman, London Panel Committee; Chairman, Public Health Committee, St. Pancras Borough Council, &c.

GORDON WARD,
Chairman, Executive Committee, Medical Practitioners' Union; Member and Representative, Kent Panel Committee; Member, Kent Voluntary Hospitals Committee, &c.

Dr. John Brown's election address unfortunately reached us too late to be quoted in full. After setting out his reasons for standing for election, to which we gave publicity last week, Dr. Brown makes the following suggestions for the reconstitution of the General Medical Council:—

"The Medical Council Act of 1858 and the Medical Act of 1886 are hopelessly out of touch with the ideals of to-day. The Medical Council is far too large and too costly. I suggest very briefly the following: The number for the present should be reduced to 36, in fact 30 might be even more effective. There should be 18 to be elected from the licensing bodies and 18 for England and Wales, Scotland, and Ireland. England and Wales to have 12, Scotland 3

and Ireland 3. This would be fair in regard to population as a basis for proportional representation. In regard to the Direct Representatives the 18 should be equalised on the basis of population. Definite areas must be made so that there shall be opportunity for candidates to visit the electors."

In Dr. Brown's opinion the National Insurance Act must be very greatly altered, so that the Ideal Family Doctor be restored. The Medical Curriculum must be changed so that the Prevention of Disease shall be the "key-note," and the cure second. The 27 Universities' Colleges ought to be federated so that there shall be uniform standards of examination and of fitness for the profession. Dr. Brown heartily supports Sir George Newman's Memorandum on recent advances in medical education in England.

Obituary.

ALFRED JASPER ANDERSON, M.B. OXF., M.R.C.S. ENG., D.P.H. CAMB.,

MEDICAL OFFICER OF HEALTH FOR CAPE TOWN.

THE death is announced of Dr. A. J. Anderson, medical officer of health of Cape Town, a well-known South African medical man whose labours on behalf of a Public Health Act and the establishment of a Ministry of Health in South Africa, now an accomplished fact, no less than in the cause of child-life protection have been of wide service. Born at Manchester in 1858, he was educated at the Manchester Grammar School. At the University of Oxford he graduated M.B. in 1883, having in the previous year taken the M.R.C.S. Eng. A student at St. Bartholomew's Hospital, he afterwards visited the medical clinics of Leipzig and Vienna, and in 1888 obtained the D.P.H. Cambridge. From 1891 to 1901 he was medical officer of health for Blackpool; he then went to Cape Town to fill a similar office. He gave himself whole-heartedly to public health work, advocating as a foundation on which to build reforms, a department of public health for the Union, the passing of a Public Health Bill to codify existing Acts and Ordinances, the compulsory appointment of women health visitors, the establishment of large municipal infant welfare centres, and the teaching of domestic science and mothercraft to girls in schools. Although much still remains to be done, Dr. Anderson has been able to see vast improvements in the directions in which his foresight visualised the need. But Dr. Anderson's vision was not confined to the particular part of the Empire in which he exercised his calling, nor to any circumscribed division of public health and hygiene. In 1922, while in England, he contributed to the Section of Tropical Diseases of the Royal Society of Medicine a paper on dysentery in the British West Indies, in which he emphasised the need for encouragement and intelligent support by the Imperial Government, the importance of closer association between the insular medical services and the schools of tropical medicine in England, and for an extension of facilities to educate the rising colonial generation in preventive medicine. He specialised in the ætiology and treatment of tuberculosis, and was lecturer in hygiene in the South African College and a Fellow of the Royal Society of South Africa.

HENRY CARTER MACTIER, M.B., CH.B., B.A.O. DUB.

Dr. H. C. Mactier, hon. surgeon to the Wolverhampton Eye Infirmary, died recently at the early age of 52, after a medical record extending over 30 years in Wolverhampton, first as a general practitioner and later as an oculist. Five years ago he had a serious illness, undoubtedly precipitated by the excessive work he performed during the war and after the Armistice, and from this illness he never completely recovered. Dr. Mactier was educated at Trinity College, Dublin, where he graduated in medicine in 1894, and the following year was appointed house surgeon in the Wolverhampton and Midland Counties Eye Infirmary. In 1900 he was appointed honorary surgeon to the Wolverhampton and District Hospital for Women, and three years later became assistant surgeon to the Wolverhampton Eye Infirmary, with which he was connected, as honorary surgeon, at the time of his death. Among his other appointments Dr. Mactier acted as honorary ophthalmic surgeon to the Royal Orphanage, Wolverhampton, ophthalmic surgeon to the Bilston Education Committee, honorary surgeon to the Church Mission to the Deaf and Dumb in Staffordshire, and medical referee to various insurance societies. For his services in connexion with the war he was awarded the M.B.E. in 1920. For 27 years he was an active member of the British Medical Association, on the Council of which he served for eight years. Of his unsparing work in the interests of the profession as a whole, a colleague writes: "It came naturally to him to work rather for the common good and to sink his personal ambition in spending himself for the benefit of the profession. One wonders whether men of such ability and capacity in medico-legal work ought not to be withdrawn from the toils of practice and set apart as forensic specialists with adequate remuneration from the body medical." He wrote many papers on ophthalmological matters which were published in the medical journals. Dr. Mactier was one of the founders of the Wolverhampton Rugby Football Club and was himself a keen player. He was also an all-round cricketer and an original member of the local Tennis Club. He is survived by his widow, a son, and a daughter, to whom we extend our sympathies.

The Services.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Sub.-Lts. to be Surg. Sub.-Lts.: R. Wear and R. Russell.

ROYAL ARMY MEDICAL CORPS.

Capt. L. R. Shore, half-pay list, late R.A.M.C., is ret. on account of ill-health caused by wounds.

Capt. J. H. C. Walker relinquishes the temp. rank of Maj. on ceasing to be empld. as a Dep. Asst. Dir. of Pathology.

TERRITORIAL FORCE.

Lt.-Col. G. L. Thornton to be Brevet Col.

Majs. A. L. Otway and C. M. Ingoldby are seconded for service under the Colonial Office.

Capt. R. W. Willcocks (late R.A.M.C.) to be Capt.

Lt. C. D. Walker to be Capt.

Lt. K. J. Franklin to be Lt.

ROYAL AIR FORCE.

G. J. Hanly is granted a short service commission as Flying Officer.

INDIAN MEDICAL SERVICE.

Col. H. J. K. Bamfield to be Maj.-Genl.

Ajab Singh Garewal, E. T. N. Trevor, and A. V. Lopes are permitted to retain the temp. rank of Capt., on admission to the Ind. Med. Service in the permanent rank of Lt.

Shankar Ramchandra Joglekar to be tempy. Lt.

DEATHS IN THE SERVICES.

Col. William Lewis Gray, C.M.G., A.M.S., who died at his residence, North Holt, Hythe, Kent, on Nov. 3rd, was the son of Dr. Alexander Gray, of Selby, and was born in 1864. Educated at the Universities of Glasgow and Edinburgh, he graduated in medicine and surgery at the former University in 1885, and proceeded to the B.Sc. in Public Health at Edinburgh three years later. He joined the medical department of the Army as surgeon in 1887, and was promoted to Major in 1889, when he served with the Anglo-Siamese Boundary Commission (1889–90). In 1895 he took part in the Chitral operations and received the medal and clasp, and from 1899 to 1901 he served in the South African campaign, when he was mentioned in despatches and was awarded the Queen's medal and four clasps. In 1911 he reached the rank of lieutenant-colonel. Col. Gray, who had been commanding officer of the Royal Herbert Hospital, Woolwich, and Examiner in Chemistry at the University of Malta, took part in the late war from the commencement till 1917, in which year he received the C.M.G. He was also mentioned in despatches. He leaves a widow to mourn her loss.

Medical News.

UNIVERSITY OF OXFORD.—At a recent Congregation the degree of B.M., B.Ch. was conferred on John Wenham Alden, Non-Coll.—The University has granted, by a Decree of Congregation, a sum of £3000 towards the expense of providing a joint lecture-room, library, and workshop for the departments of physiology and biochemistry.—Sydney G. F. Plant, B.Sc., M.A., D.Phil., Magdalen College, has been appointed to a University Lectureship in organic chemistry for two years, from Oct. 10th, 1924.

UNIVERSITY OF LONDON.—The Maudsley Hospital, Denmark Hill, S.E., treats nearly 1000 out-patients and nearly 400 voluntary in-patients per annum. The cases illustrate all types of neurosis and psychosis, though particularly recoverable forms and those in which mental symptoms are associated with organic disease in the nervous system or elsewhere. In addition the Maudsley Hospital can draw upon the mental hospitals of the County of London (containing nearly 20,000 cases) and therefore affords very special facilities for clinical study. The following opportunities for this are open to medical practitioners and students without charge: (*a*) A weekly discussion at 11.30 A.M. each Tuesday of cases in the hospital. (*b*) A monthly meeting at 4 P.M. on the last Friday in each month of the medical staff of the various mental hospitals of the County of London. At each meeting a group of cases from one hospital will be shown by its staff for discussion. (*c*) Attendance at the out-patient department at 2 P.M., on Mondays and Thursdays for male patients, Tuesdays and Fridays for female patients. Appointments as voluntary clinical assistants are open without fee to practitioners of both sexes specialising in psychological medicine. Such appointments can be either whole or part time, and to work in wards, out-patient department, or laboratories as desired. They may be held in conjunction with attendance at either part of the course for the Diploma in Psychological Medicine or apart from this. The appointment will satisfy the requirements of the examining bodies in respect of clinical experience of mental disorders, for the D.P.M., or for the M.D. in Psychological Medicine.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination held from Oct. 7th to Nov. 3rd the following candidates were approved in the undermentioned subjects, but are not eligible for diplomas:—

Medicine.—J. S. Aldridge, St. Bart.'s; M. M. Baird, Oxford and Guy's; Margaret A. Bannerman, Royal Free; W. D. Beck, Birmingham; Edith D. Bowie, King's Coll.; R. J. Brocklehurst, Oxford and St. Bart.'s; Margaret H. Brown, Charing Cross; Olive B. Buckley, King's Coll.; Margaret A. L. Buckner, Univ. Coll.; Margaret E. M. Carter, St. Mary's; A. F. Chalkley, Leeds; Irene E. Chandler, King's Coll.; G. Cheney, Harvard; Gladys M. Clarke, St. Mary's; H. A. Clegg, St. Bart.'s; H. A. Cole, Liverpool; L. N. R. Comty, London; Jean Cooper, Royal Free; J. Crowther, Manchester; J. Currie, St. Bart.'s; M. Cutner, St. Mary's; R. R. Dalling, Liverpool; J. T. Daly, Birmingham; J. R. A. Davies, St. Bart.'s; W. H. Davies, Westminster; Yolande M. de la Pasture, Bristol; T. A. J. M. Dodd, St. Bart.'s; D. C. Drake, Guy's; W. Egan, Charing Cross; Norah A. M. Empson, King's Coll.; Brenda H. English, Royal Free; G. R. Ford, Guy's; Gladys Goument, St. Mary's; G. Hamada, Birmingham; J. B. Hayes, Charing Cross; Marjorie F. M. Hayward, London; L. F. Henry, Liverpool; Freda K. Herbert, King's Coll.; J. R. B. Hern, Guy's; Minnie E. Hope, Royal Free; A. O. Jacob, Madras; C. James, Middlesex; Isabel E. S. James, King's Coll.; Kate D. James, St. Mary's; E. Jones, Guy's; B. Kornblum, Guy's; W. R. Kusel, St. Thomas's; C. K. Lakshmanan, St. Bart.'s; C. N. Latham, Birmingham; Helena M. J. McQuaid, St. Mary's; R. G. Maliphant and C. Marian, Univ. Coll.; A. Mead, St. Thomas's; M. L. Millard, Birmingham; Eileen S. Morris, Univ. Coll.; G. J. Morris, V. M. Morris, and A. M. Murray, Middlesex; G. W. Murray, Guy's; E. L. Newell, St. Thomas's; R. A. Newsom, King's Coll.; R. A. Norman and J. N. D. O'Rafferty, Guy's; Madeline P. Parker, Royal Free and St. Mary's; G. H. Pringle, Univ. Coll.; L. W. Proger, Middlesex; J. E. Readman, London; J. J. R. Robinson, St. Thomas's; H. Rogers, Bristol; Alysoun H. Rowntree, Royal Free; C. E. Sharp, McGill and Univ. Coll.; D. G. Shields, St. Bart.'s; Ruby O. Stern, Charing Cross; D. D. S. Stewart, King's Coll.; A. F. Taylor, St. Bart.'s; L. D. J. Telesphor, Univ. Coll.; Josephine I. Terry, St. Mary's; T. G. Tresidder, Guy's; E. A. Trim, St. Thomas's; Mary E. Tyars, Univ. Coll.; Joan W. Urwick, Charing Cross; Elizabeth M. Weideman, St. Mary's; D. G. Williams, King's Coll.; Emily A. C. Wilson, Charing Cross; N. Wilson, Univ. Coll.; and R. H. Yelf, King's Coll.

Surgery.—J. D. Allen, St. Bart.'s; D. Asermen, St. Thomas's; M. Bannoumah, Guy's; T. F. Barlow, London; C. E. G. Beveridge, St. Bart.'s; V. H. Boobbyer and E. H. Boodrie, St. Mary's; D. De C. Boxill, Long Island Hosp. and St. Mary's; R. N. Brandwood, Guy's; M. K. Braybrooke, St. George's; D. J. Brims, St. Bart.'s; Stella M. Brown, King's Coll.; W. A. Browne, St. Mary's; the Hon. C. B. Buckley, St. Thomas's; H. H. Bullough, Manchester; W. H. Cameron, Middlesex; A. F. Chalkley, Leeds; J. H. T. Challis, London; G. Chambers, Leeds; Eileen A. Chennell, St. Mary's; W. E. Cheesman, St. Thomas's; J. E. Church, St. Bart.'s; L. C. Cook, St. Thomas's; A. S. Cox, Bristol; D. P. Crawford, St. Thomas's; Dorothy E. Crellin, Bristol; A. Davies, Middlesex; H. J. Davies, St. Mary's; R. K. Debenham, London; M. S. Dewhurst, Univ. Coll.; F. R. Dingle and R. A. M. Dyke, Guy's; R. G. Eastwood, Leeds; V. A. Edge, London; G. E. Ellis, St. Bart.'s; T. F. Everett, Middlesex; J. T. Fathi, London; V. L. Fisher, Guy's; C. S. Forrest, Manchester and Middlesex; D. B. Fraser, St. Bart.'s; J. H. Gibbens, St. Thomas's; O. P. Giles, Birmingham; J. Goldberg, London; R. T. Goodyear, Cambridge and Liverpool; D. L. Greig, Middlesex; J. M. Hall, King's Coll.; Constance I. Ham, Bristol; T. S. Hanlin, Manchester; A. W. Hanlon, Liverpool; W. D. Hasler, Middlesex; Irene D. F. C. Hastilow, Birmingham; N. H. R. Hatfield, St. Mary's; S. Helberg, London; A. Helmy, St. Thomas's; E. Herzberg, Heidelberg; A. R. Hill and H. F. Hiscocks, St. Bart.'s; E. F. Hottinger, St. Mary's; A. T. Howell, St. Thomas's; H. B. Howell, St. Bart.'s; O. R. Humphreys, London; D. J. C. Hutton, Middlesex; I. S. Jacobsz and M. E. M. Jago, Guy's; E. J. Jenkins, Birmingham; D. F. Johnstone and L. R. Jones, Guy's; B. Kaplansky, London; T. C. Kitching, St. Thomas's; Marjorie A. M. Lambert, Royal Free; H. Levy, St. Bart.'s; C. J. Lovering and A. C. MacLeod, Middlesex; C. T. Marshall, Manchester; G. C. Michael, London; F. C. Miller, Guy's; A. J. Moody, St. Bart.'s; C. F. Morrison, Guy's; R. H. Mortis, Charing Cross; I. S. Moscow, St. Bart.'s; K. V. N. Nair, London; R. G. Nethery and F. M. Newnham, Guy's; R. Paton, Middlesex; A. P. Pearce, London; A. D. Pegg, St. Thomas's; D. C. Prowse, Bristol; T. Rees, St. Bart.'s; J. T. C. Roberts, Liverpool; J. J. R. Robinson, St. Thomas's; Edith M. Ross-Johnson, Univ. Coll.; A. W. L. Row, St. Bart.'s; K. G. W. Saunders, A. de M. Severne, and E. M. Shackel, St. Thomas's; T. A. Shaw, Guy's; H. T. Simmons, Manchester; Sylvia M. T. Smith, Bristol; L. P. Spero, St. Mary's; I. P. Spurrell, Guy's; R. Stuart, St. Bart.'s; S. N. Taylor, Manchester; E. Thompson, St. Thomas's; P. G. Trafford, Guy's; Joan W. Urwick, Charing Cross; A. G. Walter, St. Thomas's; J. M. Wilder and C. R. Williams, London; C. L. Worthington and C. J. Wylde, Guy's; and Annie Yoffa, Cornell.

Midwifery.—D. A. Abernethy, St. Bart.'s; Agnes L. Adam, Royal Free; A. A. Anderson, Western Univ.; R. E. Artrick, Univ. Coll.; D. Aserman, St. Thomas's; H. M. H. Ashwin, Guy's; A. Ashworth, Liverpool; H. Y. Awad and H. M. Ayres, St. Thomas's; M. M. Baird, Oxford and Guy's; C. W. Bamford, London; Margaret A. Bannerman, Royal Free; A. K. Basilios, Birmingham; J. R. Beagley, St. Bart.'s; I. C. P. Beauchamp, Guy's; W. D. Beck, Birmingham; W. R. Bennett, St. Mary's; Elizabeth E. Benson, Bristol; R. H. Bestawros, Cairo; A. T. Bettinson and C. E. G. Beveridge, St. Bart.'s; G. W. R. Bishop, Bristol; C. P. Blacker, Oxford and Guy's; Kathleen Blake, King's Coll.; N. W. Bolton, Manchester; R. N. Brandwood, Guy's; H. F. Brewer, D. A. Brigg, R. J. Brocklehurst, and C. W. Brook, St. Bart.'s; O. W. B. Browning, Univ. Coll.; the Hon. C. B. Buckley, St. Thomas's; Margaret A. L. Buckner, Univ. Coll.; Mathilde E. F. Bugnion, London; Eleanor G. Burdett, St. Mary's; Mary E. Campbell, Charing Cross; De L. Carey, St. Mary's; Enid A. Ceiriog-Cadle, Royal Free; J. W. Clare, Birmingham; L. M. Clark, King's Coll.; Muriel G. E. Clark, Charing Cross; Ella J. Cockram, King's Coll.; S. M. Coleman, St. Bart.'s; L. N. R. Comty, London; C. P. Craggs, St. Bart.'s; D. P. Crawford, St. Thomas's; Celia M. M. Culver-Evans, Royal Free; C. I. Davies, London; H. G. Davies, Guy's; G. H. Day, St. Bart.'s; Hilda C. Dean, Charing Cross; J. V. Dockray, Middlesex; J. L. C. Doyle, St. Bart.'s; D. C. Drake, Guy's; J. Y. Eccles, St. Thomas's; E. A. R. Evans, Liverpool; L. Fatti, Univ. Coll.; A. K. J. Finch, St. Mary's; Barbara Finch, Royal Free; Winifrede M. Fish, King's Coll.; M. G. Fitzgerald, St. Bart.'s; R. G. Flower, Leeds; R. M. Forsayeth and C. W. E. Frederick, London; H. E. Gamlen, Durham; J. H. Gibbens, St. Thomas's; T. R. Goddard, Univ. Coll.; Catherine E. I. Greenshields and R. I. Greenshields, Liverpool; B. J. Griffiths, Cardiff; T. W. Griffiths and C. J. Grosch, Middlesex; A. Gross, St. Bart.'s; R. G. Hall, Charing Cross; Constance I. Ham, Bristol; G. T. Hankey, Guy's; L. F. A. Harrison, St. Bart.'s; J. R. B. Hern, Guy's; E. Herzberg, Heidelberg; A. B. Hewlett, King's Coll.; A. E. Hill, Guy's; C. H. Hilliard, St. George's; G. S. Hirst, Leeds; E. O. Hoermann, Birmingham; J. E. Howie, Liverpool; D. B. Hughes, London; J. Hughes, Bristol; J. P. Huins, Birmingham; Dorothea A. C. Hunt, Royal Free; S. Hyman, Leeds; F. F. Imianitoff and D. Imber, St. Bart.'s; G. J. Jack, Boston; C. James, Middlesex; C. W. Jones, King's Coll.; W. H. M. Jones, Cardiff; H. Kessel, Guy's; Rachel I. Kessel, Charing Cross; W. R. Kusel, St. Thomas's; D. M. Lang, Guy's; C. N. Latham, Birmingham; M. C. Lavin, London; E. D. Lawrence, St. George's; D. F. Lawson, St. Thomas's; H. E. Lewis, Guy's; D. A. Lubbock, Univ. Coll.; A. C. Lysaght, Guy's; C. B. McArthur, Royal Free; E. H. Mackenzie, St. Thomas's; D. H. MacLeod, Middlesex; H. P. R. Mavor, St. Thomas's; J. A. A. Mekelburg, Guy's; G. C. Michael, London; M. L. Millard, Birmingham; C. G. Millman, King's Coll.; J. G. Milner, St. Bart.'s; H. P. F. Modder, St. George's; E. F. Molony, St. Bart.'s; Mary A. Monro, Royal Free; G. C. Morris, St. Mary's; Eileen S. Morris, Univ. Coll.; W. G. R. Morris, Bristol; Marjorie Murrell, Royal Free; H. W. Nicholson, St. Thomas's; W. B. Norcott, Guy's; Maud Obbard, Royal Free; B. V. O'Connor, Middlesex; D. Oliver, St. George's; J. N. D. O'Rafferty, Guy's;

A. B. Osbourne, St. Mary's; C. H. Parker, London; G. Paterson, St. Thomas's; O. L. Prosser, Liverpool; F. W. F. Purcell, St. Thomas's; J. E. Readman, London; Nellie H. Reynolds, King's Coll.; E. W. Riches, Middlesex; M. V. Roberts, London; Victoria A. Roberts, Royal Free; L. G. Robertson, Bristol; A. E. Ross, St. Bart.'s; Edith M. Ross-Johnson and D. J. L. Routh, Univ. Coll.; N. L. Russell, St. George's; K. Samaan, Manchester; H. J. Satchwell, Bristol; H. H. E. Schulz and E. M. Shackel, St. Thomas's; J. W. Scholium, Guy's; J. Shutt, London; C. F. J. Smith, St. Mary's; A. W. E. Soysa, King's Coll.; B. L. Steele, A. L. Stephen, and Catherine E. Stephen, Univ. Coll.; J. M. Sterling and Ruby O. Stern, Charing Cross; P. Subbaramayya, Madras; Sylvia Sworn, Univ. Coll.; J. E. Swyer, London; J. G. S. Thomas, Guy's; J. L. Thomas, Middlesex; O. Tobin, London; E. J. F. Topham, St. Bart.'s; Mary E. Tyars and K. H. Uttley, Univ. Coll.; J. N. J. L. Uys, St. Thomas's; B. P. Vakil, Univ. Coll.; R. A. Walsh and L. B. Ward, St. Bart.'s; E. C. Warner, Guy's; W. B. Webster, St. Bart.'s; W. S. Whimster, Guy's; F. L. White and J. W. Whitney, London; D. O. Williams, St. Thomas's; E. J. Williams, Cardiff; G. O. Williams, Liverpool; T. I. Williams, Guy's; Emily A. C. Wilson, Charing Cross; H. G. Wimbush, Guy's; Ada R. Winter, Univ. Coll.; F. H. Woolley, Bristol; S. Wray, Manchester; H. C. Wykerd, London; C. J. Wylde, Guy's; and M. Yankelovitch, Middlesex.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A four weeks' course starting on Nov. 24th will be given at the Royal Waterloo Hospital for Women and Children in medicine, surgery, and gynæcology. The programme has special reference to diseases of the blood, nervous system, heart diseases, feeding of infants, &c. During the first fortnight in December the following courses will take place: The Royal Northern Hospital, in conjunction with the Royal Chest Hospital, will hold an intensive course in medicine, surgery, and the special departments; at the Infants Hospital there will be a special course dealing with the study of infants from every aspect, and at the Hospital for Diseases of the Skin (Blackfriars) there will be a short course in dermatology, including venereal clinics. Copies of the syllabus of each of the above-mentioned courses may be obtained on application to the secretary to the Fellowship, 1, Wimpole-street, London, W. 1.

MEDICAL WOMEN'S FEDERATION.—The autumn meeting of the Council of this Federation took place at Plymouth on Oct. 31st and Nov. 1st, under the presidency of Miss Frances Ivens, M.S., President of the Federation. The business meetings were held in the Council Chamber of the Guildhall, and the members received a friendly greeting from the Mayor at their first meeting. Among the matters under consideration were reports from the local associations on salaries in public health appointments. In the discussion on these, emphasis was laid on the importance of three years' experience in candidates appointed to such posts. The following motion, to be sent to the Minister of Health, was passed:—

That in the opinion of the Council of the Medical Women's Federation, the doctors to be appointed as assistant medical officers of health (school medical officer, infant welfare and pre-maternity medical officer, tuberculosis or venereal diseases medical officer) should have had at least three years' post-graduate experience—to include more especially work bearing upon the appointments for which application is made, such as diseases in children, obstetrics and gynæcology, the study of venereal diseases, &c.

The possibility of securing the appointment of a medical woman on the Board of Control was discussed. It was felt that this would be very desirable, as under the present circumstances there is no woman at all who visits the insane, the two lay women who are on the Board visiting the mentally defective only. It was resolved:—

That a committee be appointed to prepare evidence regarding the need for a medical woman Commissioner on the Board of Control, and to take steps to submit such evidence to the Royal Commission on Lunacy, now sitting, together with a list of suitable candidates.

Reports from subcommittees of the Federation and from representatives on committees of the British Medical Association and other outside bodies were received and considered. The recent action of the London County Council in making a regulation that all their women medical officers must resign their posts on marriage without possibility of reappointment was reported and was much deplored. It was felt to be a severe blow dealt at the freedom of medical women to exercise their profession. The matter was referred to the Standing Committee for the Defence of Married Medical Women, for consideration as to future action. An interesting discussion arose on the answers to a questionnaire which had been sent out several months ago to most of the hospitals in this country in order to ascertain as far as possible (1) what hospitals have medical women on their staff and in what capacity; (2) in which hospitals are medical women eligible for staff appointments; and (3) what hospitals have women on their board of management. 581 circulars of inquiry had been sent out, and 423 replies had been received.

Mr. Neville Chamberlain, Minister of Health, has appointed Mr. Douglas Veale, of the Ministry of Health, to be his private secretary, and Mr. A. N. Rucker to be his assistant private secretary.

Dr. Walter Elliot has been reappointed to his old post of Parliamentary Under-Secretary for Health for Scotland.

THE Chelsea Hospital for Women has received from the executors of the late W. B. Hextall a grant of £1000 towards the £20,000 required for the completion of the nurses' home and the opening of additional wards. £6500 is now urgently required.

THE NEED FOR EXTENDED SICKNESS INSURANCE.—A paper on this subject will be read by Lord Dawson in the lecture theatre of the School of Oriental Studies, London Institution, Finsbury Circus, on Nov. 17th at 5.30 P.M., under the auspices of the Insurance Institute of London.

TUBERCULOSIS SOCIETY.—An ordinary meeting of this society will be held on Friday, Nov. 21st, at 8 P.M., at the house of the Society of Medical Officers of Health, 1, Upper Montague-street, Russell-square, London, W.C., when Mr. C. Goulden will read a paper on Tuberculosis of the Eye.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—The annual general meeting of this Association will be held at 11, Chandos-street, Cavendish-square, W., on Friday, Nov. 21st, at 5 P.M. (tea 4.30 P.M.), when Dr. L. R. Lempriere, the President, will read a paper on Preventive Hygiene in Public Schools Based on Twenty Years' Experience.

ROYAL DENTAL HOSPITAL OF LONDON.—The staff of this hospital is holding its annual clinical "At Home" at the hospital, Leicester-square, W.C., on Saturday, Nov. 22nd, at 2 P.M. Cases of special clinical interest which have come under observation and treatment during the past year will be shown and demonstrations given. The various departments of the hospital will also be open for inspection. The medical committee extend an invitation to any medical practitioners who may like to attend. Tea will be provided.

HUNTERIAN SOCIETY.—A meeting of this society will be held at the Cutlers' Hall, Warwick-lane, E.C., on Monday, Nov. 17th, at 8.45 P.M., when Mr. Justice Horridge and Sir William Willcox will open a discussion entitled the Medical Witness. It is hoped that the following will take part in the discussion: Sir Francis Newbolt, K.C., Sir Edward Marshall Hall, K.C., Sir Bernard Spilsbury, Mr. J. A. Cairns (magistrate, Thames police court), Mr. Freke Palmer, and Dr. Spurgin. Fellows are reminded that they may bring non-medical guests to this meeting.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.—The Langley Memorial Prize has this year been awarded to Dr. P. S. Selwyn-Clark, M.C., D.P.H., of the West African Medical Service, for his monograph on Small-pox in the Negro and Negroid Tribes of British West Africa, with special reference to the Gold Coast Colony. The prize was founded by the friends of the late Dr. W. H. Langley, C.M.G., principal medical officer of Southern Nigeria, to commemorate his work, and this is the first year of award.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The annual meeting of the Faculty was held on Nov. 3rd, when the following office-bearers were appointed:

President: Dr. T. K. Monro. Visitor: Mr. J. H. Pringle. Treasurer: Dr. J. H. MacDonald. Hon. Librarian: Dr. E. H. L. Oliphant. Councillors: The President (ex-officio), the Visitor (ex-officio), the Treasurer (ex-officio), the Hon. Librarian (ex-officio), Dr. James A. Adams, representative to the General Medical Council (ex-officio), Mr. J. Mason Noble, Dr. W. G. Dun, Dr. A. Freeland Fergus, Dr. J. M. Munro Kerr, Mr. Thomas Kay, Mr. R. M. Buchanan, Dr. G. H. Edington, Dr. John Henderson, Dr. H. L. G. Leask, and Mr. R. Barclay Ness.

SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The society announces that the following resolution will be moved on Nov. 20th at the annual general meeting of the Fellows and Members of the Royal College of Surgeons of England, to be held at the College, Lincoln's Inn-fields, London, W.C., at 3 P.M.:—

"That this Thirty-seventh Annual Meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation upon the Council of the College; moreover, this meeting requests that the President shall hereupon reply in detail to the two resolutions passed at the last annual meeting, and that he shall also state whether his Council has seriously considered any means whatever whereby the collective views of Members of the College may be ascertained on matters affecting their interests as Members."

This resolution will be moved by Dr. W. E. A. Worley and seconded by Dr. M. I. Finucane.

AT a meeting of the Royal Geographical Society on Nov. 10th, Major R. W. G. Hingston, I.M.S., speaking of the possibilities of reaching the summit of Mount Everest, expressed his own conviction that though the physiological difficulties were severe, they could be overcome.

SOUTH AFRICAN INSTITUTE FOR MEDICAL RESEARCH.—The executors in the estate of the late Mr. A. W. Bannerman, of Johannesburg, have donated a sum of £1000 to this institute to be utilised in the prosecution of some line of medical research, having as its aim the improvement of the welfare of the native races of South Africa.

EAST INDIA ASSOCIATION.—A meeting of this association will be held on Monday, Nov. 17th, at 3.30 P.M., at the Caxton Hall, Westminster, S.W. 1, when Major-General Sir Gerald Giffard, I.M.S. (retd.), will read a paper entitled "Some Aspects of the Future of Medicine in India." Surgeon-General Sir R. Havelock Charles, I.M.S. (retd.) will preside. Discussion is invited.

ROYAL INSTITUTE OF PUBLIC HEALTH. — The Harben lectures, which were to have been given on Nov. 24th, 25th, and 27th, by Prof. Edgar L. Collis, Talbot Professor of Preventive Medicine, University of Wales, on Phthisis and Industrialism (National and Occupational), with Reference to other Infectious Diseases, have unavoidably been postponed.—The next congress of the Royal Institute of Public Health, on the joint invitation of the corporations of Brighton and Hove, will be held in those boroughs from Wednesday, May 27th, to Monday, June 1st, 1925 (Whitsuntide).

ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.—The fifth meeting of this Commission was held at the Home Office, Whitehall, on Nov. 6th, Lord Lawrence of Kingsgate being in the chair. Mr. L. G. Brock, assistant secretary, and Dr. Smith Whitaker, senior medical officer, both of the Ministry of Health, were examined further on a variety of matters relating to the administration of medical benefit—e.g., the conditions of service for insurance practitioners, the supply of drugs and appliances, the various medical funds, the scale of payment for medical services and drugs, the method of selection of doctors by insured persons, the mileage payments, &c. The Commission announce that the oral evidence given at the meeting of Oct. 23rd, 1924, is now on sale in proof form (1s. 6d.) at H.M. Stationery Office, Kingsway, London, W.C. 2.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, W.
THURSDAY, Nov. 20th.—At 4.30 P.M.
Papers.—J. Barcroft, M. L. Anson, A. E. Mirsley, and S. Oinuma: The Correlation between the Spectra of Various Hæmoglobins and their Relative Affinities for Oxygen and Carbon Monoxide. H. R. Hewer: On Certain Abnormalities occurring in the Pituitary of the Frog. (Communicated by Prof. E. W. MacBride.)
Papers to be read in title only.—A. Howard: The Effect of Grass on Trees. (Communicated by Sir John Russell.) J. W. Pickering and F. E. Taylor: Blood Coagulation, Anti-Coagulants and Hæmolysis. (Communicated by Prof. W. D. Halliburton.) R. J. Ludford: The Distribution of the Cytoplasmic Organs in Transplantable Tumour Cells; with special reference to Dictyokinesis. (Communicated by Prof. J. P. Hill.) E. Ponder: On the Balloon-like Structure of the Mammalian Erythrocyte. (Communicated by Sir E. Sharpey Schafer.) V. B. Wigglesworth: Uric Acid in the Pieridæ; a Quantitative Study. (Communicated by Prof. F. G. Hopkins.) G. Lindsay Johnson: Contributions to the Comparative Anatomy of the Reptilian and the Amphibian Eye, chiefly Based on Ophthalmological Examination. (Communicated by Dr. H. Gadow.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Nov. 18th.

GENERAL MEETING OF FELLOWS: at 5.30 P.M.

PATHOLOGY: at 8.30 P.M.
T. Lumsden: Observations on Cancer Cells in vitro.
J. A. Murray: Hypersensibility of the Tissues to Cancer.
A. Fleming: The Effect of Various Chemicals on the Leucocytes.

Wednesday, Nov. 19th.

HISTORY OF MEDICINE.
No Meeting of the Section will be held on Wednesday, Nov. 19th, but the President and Council of the Medical Society of London have invited the Members of the Section to attend the "Lloyd Roberts Lecture," which will be given on Nov. 19th at 5 P.M., at the House of the Medical Society, 11, Chandos-street, W. 1, by Dr. Herbert Spencer on "The Renaissance of Midwifery."

Thursday, Nov. 20th.

DERMATOLOGY: at 5 P.M. (Cases at 4 P.M.)
Cases:
Dr. H. C. Samuel: Case for Diagnosis.
Dr. H. W. Barber: Multiple Sarcoid with Lupus Vulgaris.

Friday, Nov. 21st.

ELECTRO-THERAPEUTICS: at 8.30 P.M.
Paper:
Dr. Rist (of Paris): The Respiratory Displacements of the Mediastinum and some Allied Phenomena.

MEDICINE.
Members of the Section of Medicine are specially invited to attend this Meeting.

THE MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.
WEDNESDAY, Nov. 19th.—5 P.M., Dr. Herbert R. Spencer: The Renaissance of Midwifery. (Lloyd Roberts Lecture.)

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.
THURSDAY, Nov. 20th.—8.15 P.M. (At the London School of Hygiene and Tropical Medicine, Endsleigh-gardens, Euston-road.) A laboratory meeting, and demonstrations by Major E. E. Austen, Drs. W. Broughton-Alcock, H. B. Day, Captain W. H. Dye, Drs. Dzhohlav, H. M. Hanschell, W. E. Haworth, Colonel S. P. James, Colonel Clayton Lane, Mr. Ll. Lloyd, Drs. Manson-Bahr, Colonel Marrian Perry, Drs. J. Harvey Pirrie, H. H. Scott, Surg.-Commander T. B. Shaw, and Mr. A. L. Sheather.

THE TUBERCULOSIS SOCIETY, 1, Upper Montague-street, Russell-square, W.C.
FRIDAY, Nov. 21st.—8 P.M., Mr. Charles Goulden: Tuberculosis of the Eye.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Nov. 17th, to SATURDAY, Nov. 22nd.—WEST LECTURE HALL, Royal Society of Medicine, 1, Wimpole-street. Lectures arranged by the Fellowship of Medicine and open to all members of the profession. At 5.30 P.M., Mon., 17th, Mr. Cyril A. R. Nitch: Cancer of the Intestine. Wed., 19th, Mr. W. Sampson Handley: Cancer of the Breast. Fri., 21st, Mr. H. S. Souttar: Carcinoma of the Œsophagus.—ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C. Daily demonstrations, pathological demonstrations, and lectures on Tuesday and Thursday by Dr. A. Whitfield. Third week.—ST. MARK'S HOSPITAL FOR DISEASES OF THE RECTUM, City-road, E.C. Special Intensive Course in Proctology, including lectures, demonstrations, and operations. Second week.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Special Course in Gynæcology, consisting of lectures, demonstrations, and operations. First session on Friday, the 21st, at 2 P.M., lecture by Mr. Comyns Berkeley, operations, and demonstration.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, Nov. 17th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Mr. Bishop Harman: Eye Dept.
TUESDAY.—10 A.M., Medical Registrar: Clinical Methods. 11 A.M., Dr. McDougal: Medical Electricity. 12 noon, Dr. Burrell: Chest Cases.
WEDNESDAY.—12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Pernet: Skin Dept. 2.30 P.M., Mr. Donald Armour: Surgical Wards.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Mr. Simpson: Gynæcological Wards. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
FRIDAY.—12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Sinclair: Surgical Out-patients. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
TUESDAY, Nov. 18th.—4.30 P.M., Mr. E. S. Pierrepont: Pyorrhœa and Related Conditions.
FRIDAY.—4.30 P.M., Dr. J. B. Alexander: Mediastinal Affections, their Diagnosis, Prognosis, and Treatment.
Daily: Medical and Surgical Clinics and Clinics in the various Special Departments, Surgical Operations, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Nov. 20th.—4 P.M., Dr. Robert Hutchinson: Convulsive Disorders in Infancy and Childhood.

ST. JOHN'S HOSPITAL, Leicester-square, W.C.
TUESDAY, Nov. 18th.—5 P.M., Dr. A. Whitfield: Diseases due to Fungi.
THURSDAY.—5 P.M., Dr. A. Whitfield: Diseases due to Fungi.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)
MONDAY, Nov. 17th.—(At the Shaw-street Hospital.) Dr. Willett: Dysmenorrhœa.
TUESDAY.—(At the Maternity Hospital.) Miss Ivens: Induction of Premature Labour.
WEDNESDAY.—(At the St. Paul's Eye Hospital.) Mr. H. Haward Bywater: Methods of Eye Examination.
THURSDAY.—(At the St. George's Hospital.) Dr. F. H. Barendt: Skin Cases.
FRIDAY.—(At the Eye and Ear Infirmary.) Dr. E. Stevenson: Eye Injuries and their Treatment.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
TUESDAY, Nov. 18th.—4.15 P.M., Mr. F. H. Westmacott: Deafness, Curable and Incurable.
FRIDAY.—4.15 P.M., Mr. A. H. Burgess: Some Points in the Surgery of the Biliary Tract.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES. (At 3.30 P.M.)
TUESDAY, Nov. 18th.—(At the Royal Infirmary.) Mr. Pooley: The Ocular Causes of Headache.
FRIDAY.—(At the Children's Hospital.) Mr. P. Reckless: Cervical Adenitis.

BRISTOL UNIVERSITY POST-GRADUATE DEMONSTRATIONS.
WEDNESDAY, Nov. 19th.—3.15 P.M. (at the Town Club, Swindon), Mr. L. E. Claremont: Care and Treatment of Children's Mouths.

THE ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.
TUESDAY, Nov. 18th.—4 P.M., Prof. Herring: The Physiology of the Kidney (continued).

CHADWICK PUBLIC LECTURES.
WEDNESDAY, Nov. 19th.—8 P.M. (at the Royal Institute of British Architects, 9, Conduit-street, W. 1), Prof. J. B. Cohen: Smoke: Cause, Nature, Effects and Methods of Prevention.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-square, W.C.
(Course of Lectures on the Health of the Commonwealth.)
WEDNESDAY, Nov. 19th.—4 P.M., Prof. Louise McIlroy: The Influence of Antenatal Care upon Infant Welfare and Mortality.

THE PEOPLE'S LEAGUE OF HEALTH. Course of Lectures on the Mind and What We Ought to Know About It. (At the Medical Society of London, 11, Chandos-street, W.)
MONDAY, Nov. 17th.—6 P.M., Sir Robert Armstrong Jones: Fatigue and Sleep.

Appointments.

CATHCART, W. B., M.B., B.Ch. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Swaffham District of the County of Norfolk.

CLAUSEN, R. J., M.B., B.S. Lond., Anæsthetist to the Queen's Hospital for Children, Hackney-road.

MAINGOT, RODNEY, F.R.C.S. Eng., Surgeon with Charge of Out-patients, Royal Waterloo Hospital for Children and Women.

SHINNIE, A. J., M.D. Aberd., D.P.H., Medical Officer of Health for the City of Westminster.

THOMSON, J., M.B., Ch.B., M.R.C.P. Edin., Assistant Physician, Department Diseases of Children, Dundee Royal Infirmary.

Edinburgh Royal Infirmary: WIGHTMAN, A. R., M.B., Ch.B., BRODIE, P. M., F.R.C.S.E., MORRIS, G., M.B., Ch.B., SMITH, G. L. M., M.B., M.R.C.P.E., TODD, T. R. R., M.B., M.R.C.P.E., LOUDON, —, M.B., Ch.B., STRACHAN, —, M.B., Ch.B., MATHESON, A. R., M.B., M.R.C.P., HOULTAIN, W. F. T., M.C., F.R.C.S. Edin., MILLER, D., M.D., F.R.C.S.E., GRAHAM, —, F.R.C.S. Edin., SCOTT, —, M.B., Ch.B., BATCHELOR, R. C. L., F.R.C.S., LISTON, MARY F., M.B., Ch.B., Clinical Tutors and Senior Clinical Assistants. HERDMAN, DOROTHY P., M.B., Ch.B., DAVIES, H. W., M.B., Ch.B., GILCHRIST, A. R., M.B., Ch.B., ILLINGWORTH, C. F. W., M.B., Ch.B., SHEARER, D. A. M'M., M.B., Ch.B., STARKEY, —, M.B., Ch.B., M'LACHLAN, E. A. W., M.B., Ch.B., Clinical Assistants.

Vacancies.

For further information refer to the advertisement columns.

Aberystwyth Infirmary, &c.—H.S. £200.
Bristol General Hospital.—Hon. Reg. to Throat and Nose Dept.
Cambridge, Addenbrooke's Hospital.—H.S. at rate of £130.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Anæsthetist. £50.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P. Two H.S.'s and Obstet. Asst. at rate of £50 each. Also Asst. S.
Evelina Hospital for Children, Southwark, S.E.—H.S. at rate of £120.
Hackney Union Infirmary.—Jun. Asst. M.O. £350.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Ophth. S.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. Each £50.
London Royal Free Hospital School of Medicine for Women, Hunter-street, Brunswick-square, W.C.—Third Asst. in Obstet. and Gynæcol. Dept. £270.
Manchester Royal Infirmary.—Res. M.O. £200.
Manchester, St. Mary's Hospitals.—Three H.S.'s for seven months at rate of £50.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W. Asst. S. and Clin. Assts.
Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Jun. Res. M.O. £100. Also Asst. Ces. O. at rate of £100.
Miller General Hospital, Greenwich-road, S.E.—Res. Cas. O. £150.
Nottinghamshire County.—M.O.H. £1200.
Oxford County and City Mental Hospital, Littlemore, near Oxford.—Second Asst. M.O. £350.
Richmond, Surrey Royal Hospital.—Asst. H.S. £100.
Rochester, St. Bartholomew's Hospital.—H.P. at rate of £200.
Rousay and Egilshay Parish, Orkney.—R.M.O. £400.
Royal College of Surgeons of England.—Election to Court of Examiners.
Royal Free Hospital, Gray's Inn-road, W.C.—Sen. Res. M.O. £150. Cas. O. £100. Asst. Cas. O., Obstet. Asst., Obstet. H.S. Also H.P. and H.S. All £50.
St. Bartholomew's Medical College, E.C.—Demonstrator of Physiology.
Salford Royal Hospital.—Res. Surg. O. £200.
Sheffield, Jessop Hospital for Women.—Sen. Res. M.O. £250. Also two Asst. H.S.'s at rate of £100.
Somerset County Council, Quantock Lodge Tuberculosis Sanatorium.—Res. Med. Supt. £739 12*s.*
Truro, Royal Cornwall Infirmary.—H.S. £170.
Virol Scholarship in Hæmatology. £200.
West End Hospital for Nervous Diseases, Gloucester Gate, Regent's Park, N.W.—Asst. P., Laryngologist. Also Otologist.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. Non.-Res. H.S. at rate of £150.
Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.
York County Hospital.—H.P. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Lancaster, Lancs; Eastwood, Notts; Heanor, Derby; Hawarden, Flint.

Births, Marriages, and Deaths.

BIRTHS.

BROOME.—On Nov. 6th, at Port View, Seaview, I.W., the wife of Dr. F. C. Sedgwic. Broome, of a son.
KEMP.—On Nov. 6th, to Dr. and Mrs. P. Rowland Kemp, of 62, Leytonstone-road, E. 15.—a son.
MURPHY.—On Oct. 7th, at Rawalpindi, the wife of Major L. Murphy, R.A.M.C., of a daughter.

MARRIAGES.

KNAPP—SHAW.—On Nov. 5th, at the Royal Chapel of the Savoy, Lieut.-Colonel H. H. G. Knapp, M.A., M.D., I.M.S., to Mabel Enid, only daughter of the late A. G. Shaw, and of Mrs. Shaw, of Bournemouth West.
LOW—RAWSON.—On Nov. 1st, at St. Stephen's, Vincent-square, Harold Low, M.B., of Evelyn-gardens, to Annie Rawson, of Vincent-square.

DEATHS.

DOWNES.—On Friday, Nov. 7th, 1924, Thomas William Hardwicke Downes, M.R.C.S. Eng., L.R.C.P. Lond., of Ludlow, Shropshire, aged 49.
HELLIER.—On Nov. 8th, 1924, at 5, Bank View, Stainbeck-lane, Leeds, John Benjamin Hellier, M.D., aged 71.
LAMPORT.—On Oct. 30th, at Lancaster, Henry Christopher Lamport, M.B., C.M., in his 63rd year.
MOSS.—At Imerimandroso, Madagascar, on Nov. 1st., C. F. Arrowsmith Moss, M.D. Edin., aged 59 years.
NORTH.—On Oct. 31st, at sea, on board the s.s. *Leicestershire*, of which he was surgeon, as the result of war wounds, Thomas Stanley North, M.B., B.S. Lond., F.R.C.S. Eng., aged 27, eldest son of Thomas North, F.R.C.S.I., of New Southgate and 28, Welbeck-street, W. 1.
TATHAM.—On Nov. 8th, at the White House, Oxted, Surrey, John Francis Walkingame Tatham, M.A., M.D., in his 81st year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2	2	0
	Six Months	1	1	0
	Three Months	0	10	6
ABROAD	One Year	2	10	0
	Six Months	1	5	0
	Three Months	0	12	6

Notes, Comments, and Abstracts.

JAMAICA AS A HEALTH-RESORT.

BY JOSEPH GEOGHEGAN, M.D. EDIN., F.R.C.S. EDIN.,
KINGSTON, JAMAICA,
LATE SURGICAL SPECIALIST, ULSTER DISTRICT, R.A.M.C.;
SURGICAL SPECIALIST, MINISTRY OF PENSIONS, ULSTER REGION.

DESPITE historic precedent set by Ponce de Leon, the West Indian Islands have been little used as health resorts. Yet for this purpose certain of them possess decided qualities to attract and benefit the invalid, and they adduce in addition possible avenues for a very pleasant holiday. Amongst them none present a more gracious aspect than Jamaica. As it is distant but 17½° from the equator, the general climatic conditions of Jamaica are consequently those of its geographical position, but they are favourably modified in certain directions.

Lying in the midst of the Caribbean Sea, the island is surrounded by a wide belt of water, and the unequally altering thermal properties of these elements set up constantly interchanging currents of air. Thus a temperature by day otherwise tropical is mitigated and relieved by a steady breeze which blows from the sea all the year round, and the nights are refreshed by the deliciously cool land breeze coming down from the hills which form the backbone of the island. These mountains, rising sharply from the coast, run in irregular ridges from west to east, rising to heights of over 7000 feet. It is from those altitudes that the land breeze comes with such effect as to admit of a diurnal variation in temperature of some 15° or 16° F.: so marked and so sudden is the evening fall of the thermometer that it is considered wise to adopt precaution against chill, particularly after exercise.

Jamaica's Two Climates.

The curiously broken configuration, aptly caught by Columbus when he crumpled up a piece of paper to represent the island, is one of the main causes of the singular and striking beauty of Jamaican scenery, and in addition endows it with virtually two climates. There is the coastal climate, more attractive along the picturesque north side, where the trade wind coming off the sea is locally known as the "doctor," and there is the hill climate. The former is warmer, soothing and relaxing; drier, more equable, and heavily ozone-laden. The hill resorts, from 2000 to 3000 feet in altitude, are more bracing with their lower thermal range, lower barometric pressure, and stronger breezes. Both regions have their advantages and provide in alternation pleasant and health-giving variety.

The heat of the tropic sun is further tempered by the humidity of the air, which is high, consequent on the large neighbouring areas of water. The mean figure is 78 for the winter months, but due allowance being made for local variation the climate is not damp. The rainy seasons of October and April are sharp, but the rest of the year is distinguished by constant bright sunny weather of a regularity as welcome as it is novel after the vagaries of the English climate.

The geological surface composition of Jamaica is very largely a white limestone, whose porous, absorptive nature, despite the many streams from which the island derives its name,[1] constitutes the advantages of a dry, well-drained soil, and assists in maintaining this balmy, agreeable, and altogether charming climate. More conjectural but none the less helpful adjuvants are the extreme purity of the air and the intensity of the light. The scope of heliotherapy is too uncertain to permit of dogmatic precision, but of the physical and psychical benefit of the cheerful conditions of clear pure air and bright constant sunlight there can be no doubt. The mean temperature for the winter months, November to March inclusive, is in Kingston 76·5° F. The capital is, however, from its position on the south side, away from the breezy benefit of the trades, one of the hottest places in the island: the corresponding figure for some of the favourite hill resorts is some 8° or 10° lower.

Contrast with certain non-tropical resorts may clarify the salient points. Nice, with a proverbially mild climate, has a mean winter temperature of 49°. Madeira, which, like Jamaica, is also favourably affected by its geographical situation and structure, has a mean humidity of 75, and a mean annual temperature of 65°. The mean temperature in Cairo for January is 53°, Egypt generally being favoured by the famous "Etesian" wind and having a singularly dry climate (the mean humidity at Wadi Halfa is only 32).

The subtle metabolic variation induced by a change of climate has long been known empirically to react favourably on conditions of ill-health. Many states of delicate health, delayed convalescence, general breakdown, anæmia, tardy recovery from operation, &c., will be materially improved by any attractive holiday, be it Egypt, Nice, Madeira, or Jamaica, a reasonable allowance for the personal equation being alone required. There are, on the other hand, a numerous series of diseases whose optimum climate is a matter of care, consideration, and forethought.

The Virtues of the Island.

The leading features of the Jamaican climate as briefly indicated above will, no doubt, readily suggest its utility as a health resort. Certain affections show a singularly satisfactory response; they fall naturally into groups. For that group which comprises cardiac, vascular, or renal defects, the warmer sea coast with its high excess of ozone is more suitable. The alleviation of distressing symptoms obtained by even a short residence is surprising, and is only partly due to the absence of exposure to chill or to unnecessary variation in surrounding temperatures. The better distribution of the circulation, due to peripheral vascular relaxation and dilatation consequent on the warm atmosphere, not only relieves the kidneys by increasing skin excretion, but directly affects arterial tension.

It is curious to notice that Hans Sloan, M.D., "Body-Physician to the Duke of Albemarle," remarked some 200 years ago[2] on this same point, referring to the beneficial effects of the climate of Jamaica on plethoric, sanguine individuals, by which he undoubtedly intended those conditions covered to-day by the term "blood pressure." This observer further noted, with indubitable truth, a distinct prolongation of life in aged Europeans, and their decidedly greater vitality both of body and mind, their increased muscular and nervous capacity.

This warm marine climate is further well adapted for rheumatic troubles—arthritic or muscular—assisted, if necessary, by one or other of the mineral baths. The hill resorts presenting a mountain climate of a cool, keen, invigorating nature, possess great advantages for certain diseases of the respiratory tract. Those of the dry catarrhal type find residence here very suitable, but it is not recommended for cases of a moist, exudative nature, nor for pulmonary tuberculosis. Further experience but confirms an opinion already indicated as to this last disease in the tropics.[3] The bracing effect of the preliminary sea voyage, most of which is spent in warm weather, must not be overlooked. A condition which often favourably responds to residence in the island is insomnia. I am quite unable to account for the soporific effect of the climate, but have been notably impressed.

It may not be out of place to refer to a curious fact, that the normal differential count of the individual here shows a relative lymphocytosis at the expense of the polymorphs, the percentage of each being much closer than at home. Discussion of the causation of this change is irrelevant. The novel surroundings, the rich and varied diet, predominantly vegetarian, and the social amenities of a hospitable island coöperate with the physical change by affording the distractions always necessary in delicate or debilitated conditions, but particularly of aid when there is any nervous element.

Mineral Springs.

Jamaica is further fortunate in possessing two valuable mineral springs, though neither is yet developed as hydropathic establishment to that extent which it is hoped the future will provide. Their admirable qualities are much used locally. Bath is hot (128° F.), sulphurous, and non-purgative; its advantages lie in the treatment of neuritic and arthritic conditions, or cutaneous lesions. The other, at Milk River, is warm, saline, and purgative, and is also highly radio-active. It can be strongly recommended for the disturbed metabolism arising from auto-intoxications, for gout, rheumatism, cirrhosis, and the like.

Almost any part of the island can be reached by a series of excellent motoring roads. The various sports, tennis, golf, fishing, shooting, polo, cricket and football, are all popular local pastimes. Our insular attachment to certain foreign climes might with wisdom be subordinated to the welfare of the undeveloped resources of the Empire. It is hoped, therefore, that patriotism will stimulate, as self-interest would urge, the greater exploitation of the charms of the Queen of the Antilles.

[1] Arawak—Xaymaca = Land of rivers.

[2] A Natural History of Jamaica. By Sir Hans Sloan, Bart. Printed in London by B. M. for the author. In two volumes, 1707 and 1721.

[3] Geoghegan: Tuberculosis from a West Indian Standpoint, THE LANCET, 1919, ii., p. 56.

SOME PROBLEMS OF ASSURANCE MEDICAL PRACTICE.

IN his able and very comprehensive presidential address to the Assurance Medical Society on Nov. 5th Dr. G. Grahamsley Howitt referred to some problems raised by modern laboratory methods of investigation and by the experience of conditions originating during recent war service. Of these the most urgent and practical was that of the significance of glycosuria and its relation to true diabetes mellitus on the one hand, and to less serious disturbances of metabolism on the other.

Glycosuria as the Only Symptom.

Speaking from the standpoint of the examiner for life assurance Dr. Howitt said: "Assurance practitioners so often get the beginnings of diseases, slight signs only, and so very rarely typical text-book cases. Glycosuria, for example, is often found with no other signs or symptoms. It may be possible to get a blood-sugar test done—I have had a number of cases now—and so clear up the question whether the glycosuria indicates the beginning of the diabetes or not, and also determine whether there is some other reducing substance or not. But here again we have a new problem, for the case may turn out to be one of the kind which has almost as many names as has the albuminuria of adolescents—renal glycosuria, renal diabetes (there is no diabetes), negligible glycosuria, diabetes innocens. Dr. George Graham speaks of these as 'patients who excrete dextrose, but do not suffer from diabetes mellitus.' They give normal results to the blood-sugar test, they excrete sugar in the urine, but the level of the blood-sugar is normal or below normal. 'They feel unwell if dieted at all strictly.' At any rate, if renal glycosuria is suspected, somewhat elaborate tests by diet and examination of the urine are required to make sure.

"This necessary procedure negatives its employment in life assurance, except in very rare and exceptional cases, but one may be called upon to deal with them in cases where a man for his own sake has undergone these elaborate tests. Graham remarks: 'The disease as an entity is a new one,' and 'the cases having been only fully worked out since 1916.' They seem to be very limited in number. So far as I can judge, if one does come across a case under the circumstances I have mentioned, it could possibly only be dealt with at present on the lines of a heart case in good condition, with an adequate addition or on special terms. Possibly now that the condition has been investigated, more will be heard of it. The subjects do not seem to do well in hot climates.

"There still seems some difference of opinion about this defect. Marsh says: 'Most cases recorded are really cases of ordinary diabetes'; however, this was in 1921 and things march rapidly at the present time. For myself I feel inclined to seek safety in caution and to treat them as in diabetes unless a differential diagnosis can be worked out.

"Speaking of diabetes, one cannot help wondering whether in time there will not arise cases in which, by modern treatment of diet and insulin, the cells of the islands of Langerhans will be sufficiently restored to function as to enable the patient to do without treatment. That, of course, can hardly happen for some time yet, but it seems possible. Later on we may have them coming up for examination."

After-effects of Gassing.

Dr. Howitt then went on to the after-effects of gassing and to the problems of prognosis in those who had undergone it. "Cases still keep presenting themselves, and will continue to do so, I suppose. There is a good deal of literature on the subject, but little guidance as to what to expect in the future. An enormous amount of experimental work was done during the war, particularly in the U.S.A. by Warthin and Weller, and Winternitz. Winternitz expresses the opinion, as the result of his experiments on dogs, that 'a soldier who has recovered from the acute effects of gassing should be regarded as an individual with damaged lungs.' A later opinion by Arthur F. Hurst is to the effect that a considerable time elapses before complete restoration to health occurs, and it is still doubtful whether a greater or less degree of permanent incapacity may not sometimes follow. These were opinions based on the more or less immediate effects, and apply to pulmonary irritants.

"One may dismiss those cases where the effects were so slight as to be only temporary and those who were so seriously damaged as to become permanent invalids. The immediate effects were to produce an inflammatory and sometimes destructive condition of the respiratory organs, the extent of which varied according to the type of gas and the amount inspired.

"It appears that the fear that pulmonary tuberculosis would be a common result has not been realised, but perhaps the time is yet early to come to a definite conclusion. Raymond and Guilham, taking 162 cases, found only two cases of 'true pulmonary tuberculosis,' but 27 of recurrent simple bronchitis and 31 with emphysema in addition. They are of the opinion that 'the development of actual pulmonary tuberculosis after gassing is extremely rare.' This is borne out by Dr. T. E. Sandall in an investigation of the record cards of 83 pensioners. He found 46 per cent. with evidence of emphysema or chronic bronchitis or both, so that 'the popular impression that pulmonary tuberculosis is a frequent sequela is not borne out'; but if recovery does not take place at an early stage, the later effects, if not permanent, are at any rate of long duration. Tachycardia is found in 45 per cent. Thompson Campbell describes two pathological conditions—bronchitis with absence of dullness on percussion, no increase of V.R. or vocal fremitus with harsh or puerile respiratory murmur, prolonged respiration, coarse rhonchi and small muco-crepitant râles, if the bronchioles or alveoli are involved. The other condition is a sclerosis or slight fibrosis with diminution of percussion over the lobe, deficient air entry, harsh and puerile respiratory murmur, without increased tactile vocal fremitus or V.R. as in tuberculous consolidation. The pulse-rate is not accelerated, the temperature does not suggest tubercle, and there is wasting and debility. Shortness of breath is greater than would exist with a T.B. lesion of limited extent.

American Experience.

"Hermon Harrison Cole, in U.S.A., says the 'pathological changes are usually found toward the central and lower parts of the chest rather than the apices.' . . . There is a general and steady tendency toward recovery with decrease of physical disturbance. . . . War gassing has little to do with the development of late pulmonary tuberculosis. . . . In gassed patients, who later develop tuberculosis, it usually runs a less severe course with less tendency to serious complication than non-gassed patients. . . . The differential diagnosis from pulmonary tuberculosis is becoming more satisfactory, through recognition of rather dependable diagnostic points: of which temperature, progressive loss of weight, tendency to hæmorrhage, are most important. . . . In no single case from gas alone has a history of large hæmorrhage been given. . . . The ultimate outlook of gassed patients with or without tuberculosis is far from settled. The effect of gassing on life expectancy can be determined only by further experience.'

"This latter seems the general opinion and the inferences which may be drawn from these experiences are—that tuberculosis is not a usual sequel of gassing; that it may be necessary to make a differential diagnosis between pulmonary tuberculosis and the results of gassing; that the common results which may persist are chronic bronchitis and emphysema, a sclerosis or fibrosis, and that there is a general and steady tendency to recovery. Personally I have seen a goodly number of people who have been gassed, but all seemed to have recovered, showing no physical signs, or at most giving only a history of having an occasional cough. In only one did I find a patch over the middle lobe on the right side where there was somewhat harsh breathing. I could not satisfy myself that there was any alteration of the percussion note. The man had sometimes a morning cough, but played a good deal of tennis, took a lot of other exercise, and looked fit. He had been examined a year or two before, and was then said to have shown signs of bronchitis and emphysema. I felt inclined to take him on an Endowment Assurance with an extra."

WAR ON PESTS.

A VIGOROUS war on pests was declared on Friday, Nov. 7th, at the annual dinner of the recently incorporated College of Pestology (Bedford-square), held at Pagani's Restaurant, the pests particularly singled out for attack being the rat, the house-fly, the cockroach, the tsetse, the bilharzia, the death-watch beetle, the grey squirrel, the sparrow, and the mosquito, Col. Cuthbert James, M.P., Chairman of the College, presiding. Sir James Crichton-Browne insisted that the College must concentrate on the rat, which, despite every effort, was as aggressive as ever. Until recently, he said, the only use of the rat had been the skin, but modern science was now employing the white rat as a sort of living test-tube for feeding experiments. At the present moment, he remarked, the Hanoverian rat was making its way in huge contingents from the country to its winter quarters in London, while its alleged function as a scavenger was completely exploded. The mosquito, he pointed out, was a permanent menace to mankind wherever it existed. In spite of all the precautions taken two ships had recently arrived in British ports heavily stricken by malaria and affording an ample supply of material for British mosquitoes to distribute should they get at it. He announced that

the College had recently appointed a committee under the able chairmanship of Sir James Simpson to consider what steps should be taken for the banishment of the mosquito from Great Britain, and that a gold medal was to be given for the best essay on the subject. Further, in response to a suggestion by Dr. Andrew Balfour, of the London School of Hygiene, a panel of applied zoology had been formed, which would collect specimens of pests from all parts of the country and would institute research in various directions. Lieut. Alfred E. Moore, founder and hon. director of the College, spoke particularly of the importance of eliminating the cockroach and the grey squirrel. The latter was merely a tree-climbing rat and was ousting the beautiful red squirrel and doing immense damage in fruit-growing districts. Prof. Maxwell Lefroy spoke of the injury done by the common house-fly, charging it with carrying diseases that in this country alone caused between 15,000 and 20,000 deaths every year. In this connexion Major P. T. Wessel, an hon. secretary of the College, stated that it was proposed early next year to organise a fly "swatting" week. It was also argued that the friends of the College could do useful work by encouraging the use of the sparrow, which was a very destructive pest, as an article of diet in restaurants.

A further indictment of the rat was pronounced, and methods of minimising the rat menace were outlined, by Mr. Mark Hovell at the Chadwick public lecture delivered at the Barnes Hall, 1, Wimpole-street, W., on Nov. 10th, Sir William Collins presiding. He said that although rats cost this country £1,000,000 sterling per week, continuous war was not waged against them. There were spasmodic efforts to reduce the number of rats, such as Rat Weeks, but by the time the next Rat Week came round those which escaped the previous slaughter had produced many millions of descendants. He said that there would be no decided diminution in the number of rats throughout the country until continuous trapping was enforced. A 5-inch rabbit-trap was in many ways the best steel trap, but where a cage trap was required, the "Terrier" death run trap was by far the most efficient. Both could be provided with a cover, and also a signal to show if the trap was set or sprung. The presence of a "few" rats was usually disregarded, but a pair and their descendants at a low computation would produce in 11 months 1130, and in 13 months 3050. Farmers usually allowed their stacks to be rat-infested, but in six months 1132 rats would eat and waste wheat to the equivalent of 2329 quartern loaves, 306 bushels of sharps, and 723 bushels of bran. Rats conveyed trichinosis, foot-and-mouth disease, infectious jaundice, mange, ringworm, distemper, rat-bite fever, and last, but not least, plague, which during last March in the Punjab alone caused 25,000 deaths. More cases of plague occurred in this country than the public were aware of, and but for very careful supervision at ports there might be serious outbreaks. To reduce the number of rats to a minimum all unnecessary openings into houses or buildings should be closed, as well as traps being kept set continuously throughout the year. If pig-keepers and poultry-keepers were registered, means could be taken to ensure these rat centres being efficiently dealt with. Virus, he said, had no advantage over the recognised poisons, and its use was strongly deprecated. County councils could obtain a considerable income by enforcing the Rats and Mice (Destruction) Act, 1919, using police stations as the centre at which information could be obtained or given.

PUBLIC HEALTH IN NYASALAND.

THE territory comprised in this Protectorate is a strip about 520 miles in length and varying from 50 to 100 miles in width. The area is roughly 40,000 square miles, or about one-third the area of the British Isles. The most southerly portion of the Protectorate is about 130 miles from the sea as the crow flies. The general health during 1923 was good. In the early part of the year there was an extensive outbreak of influenza, but the mortality was comparatively low. The native population was at the time suffering from famine, and this no doubt caused a higher mortality than would otherwise have been the case. There was a small outbreak of a mild type of small-pox in the Mlanje area; 13 natives contracted the disease. Isolation was carried out immediately and contacts were, as far as possible, vaccinated and kept under surveillance, and the outbreak soon died out. Three cases only of sleeping sickness were reported amongst the native population; all three died. There were a few cases of paratyphoid fever occurring amongst Europeans in Blantyre. During the year there were treated at the Government hospitals and dispensaries 635 Europeans and 99,522 natives, as against 522 and 41,633, respectively, in 1922. The increase in the number of European patients was due to the outbreak of influenza; and in the natives the increase was due to the establishment of rural dispensaries, which treated 61,650 new cases during the year, as compared with 14,600 in 1922. The climate of Nyasaland, in its essential features similar to that of the rest of Eastern Africa within the tropics, is necessarily diversified owing to variations in latitude, altitude, and general configuration of the terrain, presence or absence of rivers, forests, &c.; but as a large proportion of the Protectorate lies at an altitude of 3000 feet or more, the heat is not generally excessive. The monsoon commences to blow strongly in September in conjunction with the sun's increase in southerly declination, and the first rains may be expected any time after mid-October. From their commencement to the end of December it is usual to experience violent thunderstorms and heavy precipitation in a few hours, followed by an interval varying from 1 to 15 or 20 days of intense heat. With the return of the sun from its southern limit of declination, the thunderstorms diminish in intensity and frequency, and are replaced by steady rain, January, February, and March being usually the wettest months as regards duration of rainfall as well as actual amount. After March the frequency and intensity of rainfall diminishes rapidly, and from May to September the climate is comparatively cool and dry.

LITTLE CRIPPLES CHRISTMAS HAMPER FUND.

To the Editor of THE LANCET.

SIR,—The King has again proved his kindly interest in the fund, founded by my father, for the annual distribution of hampers to crippled children and Guildhall entertainment to little Londoners, by heading the list for this the thirty-first year of the fund. Long experience has proved the absolute necessity of this fund which brings joy to many young hearts and strengthening encouragement to little children who are bravely struggling for health, often in straits of deepest poverty. The provision of joy to children is a cause which must surely stir every heart, and I venture to make an appeal for help which I trust will meet with an immediate response. All contributions sent to me at the address given below will be gratefully acknowledged by

Yours faithfully,

FLORENCE TRELOAR.

25, Ely-place, London, E.C.1, Nov. 10th, 1924.

LEPROSY IN INDIA.

IN a recently published little book[1] Mr. Frank Oldrieve, Secretary to the British Empire Leprosy Relief Association, puts forward a plea for a common effort to get rid of leprosy in India, which, according to official statistics, affects more than 100,000 people, though there is reason to believe that the actual number is even larger. Mr. Oldrieve describes the misery of the victims of this disease and the social damage caused by leprosy. He also summarises the progress which has been made in dealing with the disease since Armauer Hansen discovered the *Bacillus lepra* in 1874, and claims that a united effort on the part of the Government and the public would rid the great Indian Empire of this terrible disease in a very short time. Briefly, the methods he advocates are an increase of voluntary institutions, larger facilities for segregation, special clinics for out-patient treatment in all large centres, the special care of the children of out-patient lepers, and facilities for adequate treatment of every leper in the country. The book is a praiseworthy attempt to stimulate public interest in tropical diseases, the conquering of which is of vast importance to the well-being of the Empire.

THE "WHITE INDIANS" OF PANAMA.

IN the November issue of *Man* there is an interesting report by Dr. F. C. Shrubsall, Dr. A. C. Haddon, and Mr. L. H. Dudley Buxton on the so-called white Indians of Panama. Three children, two boys and a girl, the parents of the girl, and two San Blas natives, were examined, and the conclusion arrived at was that the so-called white characters are due to albinism and are of no racial significance. The authors of the report state that the head form, forehead, shape of face, nose, palpebral fissure, epicanthic fold, and general proportions of the body are clearly of local Darien type. The article is illustrated by reproductions of photographs, and the physical characteristics of the albinos are described in the text.

IN aid of Guy's Hospital, the Mayfair Dramatic Club will present the Maid of the Mill, an eighteenth century comic opera, on Monday, Nov. 24th, Tuesday, Nov. 25th, and Wednesday, Nov. 26th, at 8 P.M., at the Scala Theatre, Charlotte-street, London, W.

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[1] India's Lepers: How to Rid India of Leprosy. By Frank Oldrieve, Kaiser-i-Hind Medal. London, Edinburgh, and New York: Marshall Brothers, Ltd. 1924. Pp. 144.